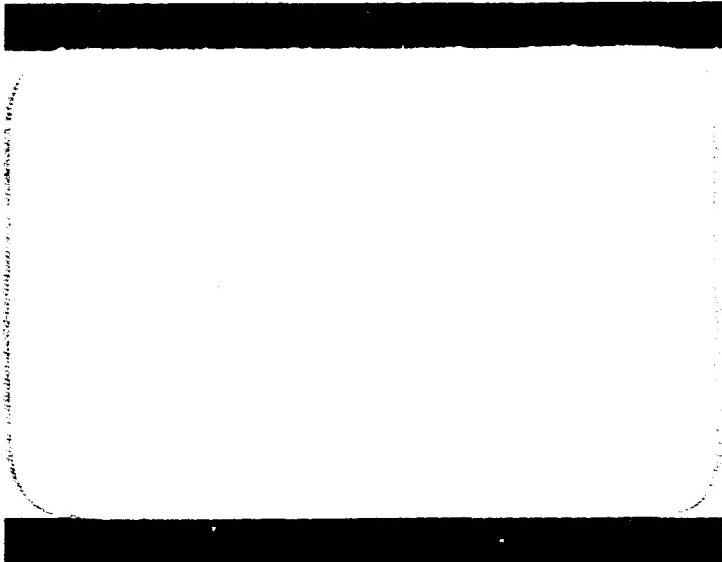


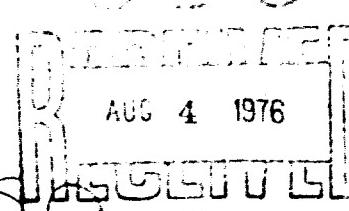
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**GENERAL DYNAMICS**  
*Convair Division*



A2136-1 (REV. 5-65)

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Convair Division

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Issue Date: 15 August 1976

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DIFFICULTIES REVIEW ATLAS BOOSTER  
AIRBORNE AND GROUND SUPPORT SYSTEMS.

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JUSTIFICATION		
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BOOK I.

GENERAL INFORMATION.

(12) 224p.

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Approved by

B. E. Shaffer

Chief of Reliability Engineering

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BOOK I - DIFFICULTIES REVIEW - GSE CONTAINS THE FOLLOWING VOLUMES

VOLUME I AIRCONDITIONING

VOLUME II AUTOPILOT

VOLUME III ELECTRICAL

VOLUME IV FLIGHT CONTROL

VOLUME V GUIDANCE

VOLUME VI HYDRAULICS

VOLUME VII INSTRUMENTATION

VOLUME VIII LAUNCHER

VOLUME IX LAUNCH CONTROL

VOLUME X PNEUMATICS

VOLUME XI PROPULSION

VOLUME XII PROPULSION INTERFACE

VOLUME XIII PROPELLANT LOADING

VOLUME XIV SERVICE TOWER

## GENERAL INFORMATION

The Difficulties Review encompasses problems gathered from the factory, the field, (ETR and WTR) and UTP. The factory difficulties are limited to "selloff" and rerun composite testing.

In the UTP area, the difficulties were excerpted from Central Test Control Reports, Problem Reports, Supplementary History Sheets and Problem Review Reports.

Field problems for the Difficulties Review have been limited to captive flights, flight readiness firings, actual countdown dual propellant loading, quad tanking, component reliability testing, and flight acceptance composite tests. Difficulties called out in the search for critical weakness program was not documented.

GSE problems shall be limited to ETR Complex 12, 13, 36A and 36B for the present edition. Hereafter only booster difficulties shall be maintained.

Failure analysis reports cover difficulties from the field and factory and may complement the information above.

The GSE Difficulties Review, Book 1 contains 14 Volumes, one volume for each system, under one cover. Each volume is appropriately indexed.

The Airborne Difficulties Review, Book 2 contains 13 volumes. Each volume is under separate cover except Volumes II, IV and VI. Volumes II, IV, and VI are under one cover because of the limited material contained in each volume. All volumes are appropriately indexed.

A guide to facilitate interpretation of data in the Difficulties Review (GSE and Airborne) is part of each book or volume.

**GENERAL DYNAMICS**  
**Convair Division**

**Subject:** Explanatory Information For Use of Difficulties Review (DR)  
Data Tab Runs

This information has been prepared to facilitate use of the DR. It is not intended to describe how the DR was prepared nor the scope of the existing effort.

The Difficulties Review (DR) is presented on a form compatible with automated data processing and printout.

Appearing at the top of the page (outside of blocked-in areas) is the identification of the system and whether it is Airborne or Ground Support Equipment. Appearing with this identification is the date of the document and the page number.

On the right hand side outside of the blocked area, appears the abstract number. An abstract number is assigned to each item of the Difficulty Review to facilitate traceability to the original input document.

Appearing under the major identification are blocks wherein the information on component or system difficulty is identified and explained. Attached are samples of pages coded for reference to the following definitions and explanations:

<u>CODE</u>	<u>EXPLANATION</u>
(1)	This group of blocks callout <u>system</u> , <u>subsystem</u> , <u>test/report number</u> , <u>failed component name</u> , <u>difficulty (Dif) data source</u> , and <u>GDC part number</u> if applicable. Also called out here is the <u>vehicle number</u> , if applicable, and the <u>date of difficulty</u> .
	In the same row, the <u>site</u> location, and in case of a flight, captive flight, or countdown, the time will be entered.
	The block containing PRI and OTH refer to whether or not the failure is <u>primary</u> or a <u>secondary</u> failure. A secondary failure is to be interpreted as caused by another discrepancy.
	The last block in this row is obvious and requires no further explanation:
(2)	Refers to a major system of the launch vehicle.
(3)	Refers to subsystem of a major vehicle system if applicable, (Booster, sustainer, etc).

**GENERAL DYNAMICS**

Convair Division

<u>CODE</u>	<u>EXPLANATION</u>
(4)	Is a report number as opposed to type of report, (UTP, Countdown, Flight, FAR, etc.).
(5)	Is a type of report, such as a FAR, UTP, FRF, etc.
(6)	Refers to a component part by name.
(7)	Is a component piece part of the component and referred to by name, (plug, seal, wiring, diode, etc., only where applicable).
(8)	Is a GDC part number, if applicable.
(9)	Refers to a site or location at time of discrepancy on the component or vehicle system.
(10)	Is the vehicle on which discrepancy occurred. Vehicle number listed only if unit was installed on a vehicle at time of discrepancy.
(11)	Is the vendor part number, if applicable.
(12)	Is the vendor name, if applicable.
(13)	Is the failure caused by other component or other system. This item defines the failure as secondary or not secondary.
(14)	Refers to the primary failure. If item is labeled <u>no</u> , then item (13) may appear as a <u>yes</u> . Should item (13) appear as a <u>yes</u> , then an abstract will have been written to identify the cause of failure effecting the component referred to in the Difficulty Review, Item 6. It should be noted that a multiple failure may be recorded in these blocks, (yes/yes), or if a failure did not occur, (no/no).
(15)	Defines the failure mode, and if identifiable, the cause is called out. A careful review of the failure mode is made to determine effect on system operation and vehicle effort.

**GENERAL DYNAMICS**

Convair Division

**CODE**

**EXPLANATION**

(16)

Defines the system effect. This effect is the result of the failure mode assigned to the component.

(17)

Defines the vehicle effect. This effect is a result of the failure mode and the result of the system effect.

It should be noted that corrective action may be taken whether or not the failure was confirmed.

(18)

Lists the corrective action Taken by GDC, the vendor, or both.

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ECONOMIC DYNAMICS COMMUNICATION

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DIFFICULTIES REVIEW-HYDRAULIC SYSTEM-AIRBORNE							
SYSTEM SUB-SYSTEM	TC/AT REPORT NUMBER FAILED COMPONENT NAME	DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME PART NO	REPORTS
HYDRAULIC A/B BOoster	27A3977 HYDRAULIC PUMP	UHP-PET RT-02866-1	CONVAIR TES VICTORY NO AA-00884-N-24	641289	CONFIRM YES VICTORY NO AA-00884-N-24	11	10
						12	13
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THE INFLUENCE OF CULTURE ON BEHAVIORAL LEVELS

8

CO-RECIEVE ACTION-VENDOR REVIEWED STOCK OF O-RINGS AND INFORMED THEIR PERSONNEL OF CORRECT SEAL INSTALLATION PROCE  
 HYDRAULIC-A/B  
 BOOSTER      HYDRAULIC PUMP/SEAL  
 ALV-49-1U-269F  
 FAILURE MODE-INTERNAL-CONTINUOUS OIL SEEPAGE WAS OBSERVED DURING CHECKOUT. CAUSED BY DEFECTIVE SEAL AT PUMP TO  
 ANLE PORT BEFORE BEARING PORT.  
 87-08886-L  
 86103      FACTORY YES TICKERS  
 NO 1A00844-R-FA  
 600194

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7

HYDRAULIC A/S  
 BOOSTER  
 BLV-05-1-0-238-7  
 BOOSTER HYDRAULIC PUMP/SEAL  
 27-08348-1  
 FAR  
 0071-01 WIN  
 NO VICKERS  
 YES AA-00884-A-NA  
 640700  
 FAILURE MODE-LEAK EXTERNAL. PUMP WAS REPORTED LEAKING AFTER HOT FIRING TEST. CASE WAS OVERPRESSURIZED CAUSING DAMAGE TO CASE COVER SEALS.

FAILURE MODE-LEAK EXTERNAL. 8/M 80D-0865 FAILED TO MEET CARE DRAIN LEAKAGE REQUIREMENTS OF 0.0 GPM DURING PRT-1AT. THIS UNIT ALSO FAILED TO MEET PEAK TRANSIENT PRESSURE REQUIREMENTS. REFER TO PPR-4881.  
SYNTH EFFECT-NONE.

15 FEB 1966

GENERAL DYNAMICS  
CONVAIR DIVISION

PAGE 0004

## DIFFICULTIES REVIEW-HYDRAULIC SYSTEM-AIRBORNE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE Q/T TIME DIF OTH VENDOR PART NO	VENDOR NAME
HYDRAULIC-A/B BOOSTER	PTAG087/PB-MO-Q1-GACB	COMPOSITE-PRO/DPL 1310 050713	300 NO NO	6897607

CORRECTIVE ACTION-BOOSTER HYDRAULIC FILL AND BLEED PERFORMED.

HYDRAULIC-A/B BOOSTER	COG/BKF83-048/01-401-00-29	FLIGHT 050701	390 B-1 -32.3 YES NO	6897144
--------------------------	----------------------------	------------------	----------------------------	---------

FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. TEST WAS RUN WITHOUT BOOSTER HYDRAULICS BECAUSE BOOSTER HPU COULD NOT BE OPERATED REMOTELY. THIS WAS NOTED DURING AUTOPilot FINAL CHECK.

SYSTEM EFFECT-OPERATION DOES NOT START.

VEHICLE EFFECT-NONE.

CORRECTIVE ACTION-BOOSTER HPU HAND VALVE, MICROSWITCHES V3 AND V4 ADJUSTED TO MAKE WIPER CONTACT.

HYDRAULIC-A/B BOOSTER	COG/BKF83-039/02-401-00-177	FLIGHT 050803	1770 6-8 2.3 NO	6897320
--------------------------	-----------------------------	------------------	--------------------	---------

FAILURE MODE-LEAK. BI HYDRAULIC ACCUMULATOR PRESSURE EXHIBITED NO PRESSURE DIFFERENCE DURING THE OIL EVACUATION SEQUENCE.

SYSTEM EFFECT-POSSIBLE CONTAMINATION. ALTHOUGH THE FAILURE MODE INDICATES THE POSSIBILITY OF AIR IN THE BOOSTER HYDRAULIC SYSTEM, SYSTEM PERFORMANCE WAS SATISFACTORY.

VEHICLE EFFECT-NONE.

CORRECTIVE ACTION-NONE. THE POSSIBILITY OF CONTAMINATION WAS NOT CONFIRMED BY ANY OTHER TELEMETRY DATA.

HYDRAULIC-A/B BOOSTER	COG/BKF83-039/02-401-00-177	FLIGHT 050803	1770 6-8 2.3 NO	6897320
--------------------------	-----------------------------	------------------	--------------------	---------

FAILURE MODE-OUT OF TOLERANCE. BOOSTER HYDRO ACCUM. PRESS MEASUR. HHP AND HYD. PUMP OUTLET PRESS. MEASUR HHP INDICATED AN INITIAL NORMAL PRESS. RISE BUT TO A LOWER (3150 PSIA) THAN NORMAL (3350 PSIA) PEAK AT 2.3 SEC. THE PRESS. THEN DEGRADED TO 8720 PSIA DURING NEXT 1.3 SEC. SPECIFIC CAUSE UNKNOWN BUT SYMPTOMATIC OF UNUSUALLY HEAVY DEMAND ON CYLSTE H.

SYSTEM EFFECT-OPERATION TOO LOW. BOOSTER HYDRAULIC PRESS. LOWER THAN NORMAL FOR A TIME PERIOD OF ~2.3 SEC TO 1.3 SEC.  
C. NO ADVERSE EFFECT NOTED ON SYSTEM PERFORMANCE.

VEHICLE EFFECT-NONE.

CORRECTIVE ACTION-NONE.

HYDRAULIC-A/B BOOSTER	60/C2ZM09-Q17-0A1027-1-4-7MO-01-71 COMPOSITE-PRO/DPL 7107 050410	2-4 NO	6897320
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AIRCONDITIONING SYSTEM

GSE

DIFFICULTIES REVIEW

DIFFICULTIES REVIEW AIR CONDITIONING SYSTEM GSE  
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Heater	0001

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DIFFICULTIES REVIEWED IN AIR CONDITIONING SYSTEMS - 18

GENERAL ORGANIC  
CONTRACT DIVISION

SYSTEM SUB-SYSTEM	TEXT/REPORT NUMBER FAILED COMPONENT NAME	DATA SOURCE PART NUMBER	VEHICLE DATE DIFF	SITE TIME DIFF	PRI OTH	VENDOR NAME VENDO/PART NO
AIR CONDITIONERS-4&5 POO COOLING	CAPBAN 31-0411/3-4MO-02-269 CIRCUIT BREAKER, WIRING	COMPOSITE-PRO/DPL	249D	15	YES	641102 -66U NO

FAILURE MODE-ELC RICAL OPEN. NO AIR CONDITIONING DID NOT OPERATE. INVESTIGATION REVEALED THAT THIS FAILURE WAS CAUSED BY A LOOSE WIRE IN THE CIRCUIT BREAKER.

18911 FOR 1330 NOV 1983-13333 M3184

VEHICLE EFFECT-COMPENSATE DELAYED. THERE WAS A 10 MIN HOLD AND A 50 MIN RECYCLE. LOG WAS DETAINED TO PERMIT INVESTIGATION BY PROFESSIONAL SHOOTDOWN OF THE AVIATION WITH EQUIPMENT OPERATING IN THE POOL.

COOPERATIVE ACTIVITIES IN SECURITY AND DEFENSE ARE DESCRIBED.

LINE HORN -  
THE AIR CONDITIONING GSE BREAKER POWER CIRCUIT WAS TRIPPED. THE CAUSE WAS  
A FAILURE MODE-ELECTRICAL OPEN.

VEHICLE EFFECT-EQUIPMENT USES: HOUR TIME IN MINUTES:

CORRECTIVE ACTION - THE CIRCUIT BREAKER WAS RESET AND THE TEST CONTINUED.

MR CONDITIONING-GSE  
SUBCLINICAL INFECTION HEATING  
AAGD-0-310/PZ-401-00-95  
THERAPY AFFECTS INFLAMMATION  
COMPOSITE-J FACTY 590 1" YES  
601028 -2280 NO

FAILURE MODE FAIL DURING DEPLOYMENT. THE COUNTDOWN WAS HELD AT 1:00 MINUTE FOR INTEGRATION OPERATION OF THE THRUST ACC

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AUTOPILOT SYSTEM  
GSE  
DIFFICULTIES REVIEW

DIFFICULTIES REVIEW AUTOPILOT GSE  
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18 JUN 1988

GENERAL DYNAMICS  
CONVAIR DIVISION

DIFFLICULTIES REVIEW-AUTOPILOT SYSTEM-686

SYSTEM SUB-SYSTEM	TEST REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PAL OTH	VENDOR NAME VENDOR PART NO
AUTOPILOT-SQUARE-686	SLV-98-45-03-F AMPLIFIER, ISOLATION.	PAR 87-00121-1	660310	ETR		KINETICS 4405-3

FAILURE MODE-ERRATIC OPERATION. INTERMITTENT waveform was reported on PITCH SIGNAL AMPLIFIER CHANNEL. FAILURE WAS UNCONFIRMED.

CORRECTIVE ACTION-NONE SINCE THE FAILURE WAS UNCONFIRMED NOR WAS THE REPORTED FAILURE CAUSE FOUND.

AUTOPILOT-SQUARE-686	SLV-98-45-03-F DELAY, VOLTAGE- SENSING	PAR 87-00121-1	53-03	ETR	AUTRONICS 1433-3	699511
----------------------	---	-------------------	-------	-----	---------------------	--------

FAILURE MODE-ERRATIC OPERATION REPORTED BUT FAILURE ANALYSIS COULD NOT CONFIRM THE REPORTED FAILURE.

CORRECTIVE ACTION-NONE SINCE THE REPORTED FAILURE NOR A CAUSE WAS FOUND.

AUTOPILOT-SQUARE-686	SLV-98-45-03-F AMPLIFIER	PAR 87-00121-1	660310	ETR	KINETICS 4405-3	699511
----------------------	-----------------------------	-------------------	--------	-----	--------------------	--------

FAILURE MODE-FAILED TO OPERATE AT PRESCRIBED TIME. AMPLIFIER HAD NO OUTPUT. BROKEN FUSE HOLDER HAD SHORT CIRCUITED TO EQUIPMENT CASE.

CORRECTIVE ACTION-PAR SLV-98-45-3623 AND MEMO FROM SLV LAUNCH CONTROL DATED 8/20/86 STATE THAT AMPLIFIER DASH 1 IS A UPSERSED BY DASH 3 WHICH HAS FUSE HOLDER SECURED WITH BOLT. SUBJECT AMPLIFIER WAS PROBABLY MISHANDLED TO CAUSE DISL OOSEMENT OF FUSE HOLDER FROM ITS EPOXY BOADING.

AUTOPILOT-SQUARE-686	CT-11-45-028 AMPLIFIER, LINE-DRIVING	PAR 89-08864-3	660110	ETR	KINETICS 44-9-9-3	699511
----------------------	---	-------------------	--------	-----	----------------------	--------

FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. DUE TO BLOWS PRIMARY POWER PULSE.

CORRECTIVE ACTION-CAREFUL EXAMINATION OF TEST PROCEDURES TO DETERMINE A POSSIBLE SOURCE OF VOLTAGE MISAPPLICATION & OTHER EXTERNAL CAUSE OF EXCITABLE INPUT CURRENT.

ELECTRICAL SYSTEM  
GSE  
DIFFICULTIES REVIEW

DIFFICULTIES REVIEW ELECTRICAL - GSE  
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GENERAL DYNAMICS

GIRFICHTER GEYLER-ELECTRICAL SYSTEMS-GEYLER

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	BITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
ELECTRICAL-GSE	60C/BKF09-036/EE-601-C014P	COUNTDOWN	147F 63000S	A2	YES NO	
	FAILURE MODE-FAILED DURING OPERATION. WATER SYSTEM FAILED. INDICATION WAS RECEIVED DURING COUNTDOWN. FLAME DEFLECTION WAS VISUALLY-CONFIRMED AND MISSILE WAS LAUNCHED.					
SYSTEM EFFECT-IMPROPER DISCRETE SIGNAL.						
VEHICLE EFFECT-COUNTDOWN DELAYED.						
CORRECTIVE ACTION-UNE NOMIN.						
ELECTRICAL-C/C SUSTAINER	A3-4M0-02-301 UMBILICAL	COMPOSITE-FD/PDL 630217	3010 A3	YES NO		
	FAILURE MODE-FAILED TO OPERATE AT PRESCRIBED TIME DUE TO A LOOSE UMBILICAL. THE A/P PROGRAMMER FAILED TO DISARM AT COMMIT STOP.					
SYSTEM EFFECT-NONE.						
VEHICLE EFFECT-NONE.						
CORRECTIVE ACTION-TIGHTENED LOOSE UMBILICAL.						
ELECTRICAL-GSE POWER DISTRIBUTION	CAPSAN12-069/P6-L0-01-04CA UMBILICAL CONNECTOR	COUNTDOWN 641204	1460 -12000	36A NO	YES NO	
	FAILURE MODE-ERRATIC OPERATION. ATLAS AUTOPILOT SPIN MOTOR ROTATION OUTPUT DETECTION LIGHT INTERMITTANT THROUGH UMBILICAL P1001.					
SYSTEM EFFECT-NONE.						
VEHICLE EFFECT-COUNTDOWN DELAYED AT T-200 UNDETERMINED AMOUNT OF TIME.						
CORRECTIVE ACTION-P1001 WAS PULLED AND CLEANED WITH ALCOHOL, AND REINSTALLED. NO FURTHER INTERMITTANT INDICATIONS WERE OBSERVED.						
FALLURE MODE-CONTAMINATION. ONE-INCH MOTION SWITCH DID NOT ACTIVATE. CONTAMINATION AND/OR CORROSION CONSIDERED TO BE THE MOST LIKELY CAUSE.						
ELECTRICAL-GSE	6DA-APZ64-052/E1-603-00-810 ONE-INCH MOTION SWITCH	COUNTDOWN 640807	110F 0	36E NO	YES NO	
	SYSTEM EFFECT-OPERATION DOES NOT START. DISCRETE SIGNALS INITIATED BY THE ONE-INCH MOTION SWITCH TO EJECT UMBILICALS AND TO START GUIDANCE COMPUTER RESET TIMER WERE NOT BENT. UMBILICALS EJECTED BY LANYARD. COMPUTER RESET STARTED 0.2 SECONDS LATE BY UMBILICAL EJECTION BACK UP SIGNAL.					
VEHICLE EFFECT-IMPROPER TRAJECTORY. LAZY START OF COMPUTER RESET TIMER CONTRIBUTED TO TARGET OVER SHOOT OF 4.0 NM.						

15 JUN 1984

GENERAL DYNAMICS  
CONVAIR DIVISION

DIFFICULTIES REVIEW-ELECTRICAL SYSTEM-GSE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
ELECTRICAL-GSE SUSTAINER	LV-A9-14-211-F HARNESS-UMBILICAL	27-04007-005	204-0 040304	FACTORY NO	YES NO	699364

CORRECTIVE ACTION-ECP 2409 TO INCLUDE ONE-INCH MOTION SWITCH RELIABILITY IMPROVEMENTS AND PROVIDE MEANS OF FUNCTIONAL CHECK OF SWITCH WITH MISSILE ON STAND.

ELECTRICAL-GSE  
POWER DISTRIBUTION

Failure mode-open in cable due to improper wiring instruction on operational planning card resulting from an error in ECR 175225 TG drawing 27-61887.

CORRECTIVE ACTION-APPLICABLE PLANNING CARD WAS CORRECTED.

ELECTRICAL-GSE  
POWER DISTRIBUTION

Failure mode-fail during operation. During ISPT, the test specimen did not completely eject when 22 VDC was applied to the ejection solenoid. Electrical interruption was accomplished within the required time. Problem due to drag on insulator exceeded the force of the spring system available to retract the half pins from the dead face for complete mechanical separation.

CORRECTIVE ACTION-GC SURVEY 33-64 WAS ACCOMPLISHED REPLACING THE CORNER POST SCREWS WITH SMALLER DIAMETER SCREWS. TIGHTENING WAS REASURRED WITH UNDERIZED CORNER POST SCREWS INSTALLED. (REF FMR 149 B).

ELECTRICAL-GSE  
POWER DISTRIBUTION

Failure mode-electrical short, out of tolerance during ISPT HYPOUT TEST. CUT OF TOLERANCE READINGS WERE RECORDED BUT WHEN ALL PINS BEING MONITORED AND SHELL AND ALSO BETWEEN CENTER CONDUCTOR OF CONTACT 93 AND SHELL. PART MATED WITH 27-04009-17.

CORRECTIVE ACTION-ARCING ON ALL BUT COAX DISAPPEARED AFTER CONNECTOR DISASSEMBLY AND REASSEMBLY, AND APPEARED TO BE ASSOCIATED WITH A FLOATING POTENTIAL AT HIGH AT VOLTAGE LEVELS. ARCING OF COAX CONTACT CENTER CONDUCTOR TO SHIELD WAS DUE TO POOR WIRE TERMINATION METHOD. VENDOR AND OPI WERE ADVISED OF FAILURE TO PREVENT RECURRANCE OF PROBLEM. (RE F. FMR 103).

1118

GENERAL DYNAMICS  
CONVAIR DIVISION

DIFFICULTIES REVIEW-ELECTRICAL SYSTEMS-688

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SYSTEM SUB-SYSTEM		TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE: DATE D/F	WHITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
ELECTRICAL-63E POWER DISTRIBUTION	UNIDENTIFIED	CD/483-0409/01-402-00-143	COUNTDOWN	1AD0 0007249	B-1	YES NO	

**EMERGENCY FAILURE MODE-FAIL DURING OPERATION: UMBILICAL PILOT FUEL OUT AFTER ENGINE START AND BEFORE MAINTENANCE COMPLETE.**

WIRING SYSTEM EFFECTS ON PREMATURELY ENGINE CUT-OFF

KENTUCKY STATEMENT OF EDUCATION

CORRECTIVE ACTIONS

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UNIVERSITY OF TORONTO LIBRARIES

FAILURE MODE-FAIL DURING OPERATION. UNILICAL PILOT FELL OUT PRIOR TO RECEIPT OF ENGINES COMPLETE SIGNAL. AS A

ELECTRICAL-GSE  
 POWER GENERATION  
 ACTUATOR EJECTION  
 CT-9B-400-013  
 FAR  
 55-08274-3  
 000523  
 ETR  
 YES GRAY-HULE  
 NO 070-440-3

AMERICAN  
MUSEUM  
OF NATURAL  
HISTORY  
N.Y.C.

CORRECTIVE ACTION-RECOMMEND SITE PERSONNEL BE REINSTRUCTED IN THE PROPER USE OF ADEQUATE MEASURING EQUIPMENT

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GENERAL DYNAMICS  
CONVAIR DIVISION

PRACTICAL REVIEW-TECHNICAL STAFFING

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
ELECTRICAL-GSE POWER GENERATION	FAR-CT-28-480-012 RELAY	FAR 97-37502-001	651813	364/FTR YES LEACH NO 9243-33-6		

FAILURE MODE FAIL TO OPERATE AT PRECRISED TIME. THE RELAY SENSES THE PHASE SEQUENCE OF AC GROUND POWER, AND LIGHTS AN INDICATOR IN THE BLOCKHOUSE. THE INDICATOR IS NOT LIGHTED UNTIL THE INDICATOR TMRD IS INTERNALY SHORTED OUTSIDE THE CASE. THE PART WAS SHORING TMRD INTERNALY.

THE VENDOR IMPROVE THE METHOD OF LOCKING THE ARMATURE ARM TO THE MOTOR SH

ELECTRICAL-GE  
POWER GENERATION  
AAG-0035/P4-7C0-06-3301  
MAGNETIC AMPLIFIER  
COMPOSITE-J FACT  
5301  
651004  
YES STAVOLT  
NO

FAILURE MODE FAIL DURING OPERATION. PS-E POWER SUPPLY FAILED DURING COMPOSITE JOINT FACT DUE TO DEFECTIVE MAGNETIC AMPLIFIER. REFER TO IR DIAGRAM.

SYSTEM EFFECT-OPERATION STOPS PREMATURELY: POWER SUPPLY UNEXPECTEDLY TERMINATED.

THE CULTURE OF THE CHINESE IN AMERICA

ELECTRICAL-65F  
POWER GENERATION  
FARLV-0D-24-9U13-F  
400-CYCLE MONITOR CIRCUIT  
27-18370-9

MONITOR UNIT FAILS TO OPERATE AT PRESCRIBED TIME. THE MONITOR UNIT SENSES THE PHASE VOLTAGES OF THE 400-CYCLE POWER SUPPLY. THE UNIT FAILED TO DETECT LOW VOLTAGE. INVESTIGATION REVEALED SHORTED TRANSISTORS AND DIODES. PROBABLY CAUSED BY A MOMENTARY POLARITY REVERSAL. THE CAUSE OF THE REVERSAL COULD NOT BE DETERMINED.

CORRECTIVE ACTION-THE FAILURE WAS CONFIRMED. THIS -1 CONFIGURATION HAS BEEN REDESIGNED AND REPLACED BY A PRODUCTION -3 CONFIGURATION.

ELECTRICAL-69E  
POWER GENERATION  
EIR-039/PB-CO-01-DAC3  
SAIL SWITCH  
COMPOSITE-J FACT  
1560  
65010  
364/ETR YES  
-300  
NO

BY PB-3.

THE FS-3 COMPLEX POWER SUPPLY INTERMITTENTLY DROPPED FROM 28 VDC TO 22 VDC THREE TIMES DUE TO THE THERMISTOR EFFECT DURING THE TEST.

15 JUN 1966

GENERAL DYNAMICS  
CONVAIR DIVISION

DIFFICULTIES REVIEW-ELECTRICAL SYSTEM-GSE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI DIF	VENDOR NAME VENDOR PART NO
S6000000						

VEHICLE EFFECT-COMPOSITE DELAYED. A HOLD WAS CALLED TO INVESTIGATE THE VOLTAGE TRANSIENTS.  
E.

ELECTRICAL-GSE POWER GENERATION	AAA-0037/PB-CO-03-OAC3 POWER SUPPLY	COMPOSITE-J FACT 640622	1350 226	SEA/ETH NO	640515	SEAS/ETH NO
S6000001						

FAILURE MODE-CUT OF TOLERANCE. A MOMENTARY VOLTAGE DROP WAS NOTED DURING THE TEST CAUSED BY HEAVY LOADING WHEN PYRO SYSTEM EFFECT-OPERATION TOO LOW. THE LOW OUTPUT OF THE GROUND POWER SUPPLY CAUSED A LOW DC INPUT TO THE AZUSA CANISTER (22 VOLTS), AND RESULTED IN A MOMENTARY LOSS OF AZUSA.  
VEHICLE EFFECT-NONE.

CORRECTIVE ACTION-NONE.

ELECTRICAL-GSE POWER GENERATION	FAR-CT-9B-48-004-C RESISTOR	FAR N/A 27-06416-1	640515	SEA/ETH YES 86-188-23	640515	SEA/ETH NO MILWAUKEE REGI 86-188-23
S6000002						

FAILURE MODE-FAIL DURING OPERATION. SIX RESISTORS BURNED AS THE RESULT OF FAILURE OF A TIME DELAY RELAY (REF. FAR-C  
T-9B-48-003C).

CORRECTIVE ACTION-NO ACTION WAS TAKEN.

ELECTRICAL-GSE POWER GENERATION	FAR-CT-9B-48-003-C TIME DELAY RELAY	FAR	640515	SEA/ETH NO ED-70143	640515	SEA/ETH YES CURTIS-WRIGHT NO ED-70143
S6000003						

FAILURE MODE-FAIL DURING OPERATION. THE METER IS PART OF THE ELECTRICAL CHECKOUT SET WHICH MONITORS THE 400-CYCLE 7  
OVER FREQUENCY. FAILURE OCCURRED WHEN THE GENERATOR WAS TURNED ON FOR A DAILY CHECK AND THE METER BEGAN TO SMOKE. AF  
TER DISASSEMBLY, A SHORT WAS DISCOVERED BETWEEN GROUND AND THE RECTIFIER DC OUTPUT CIRCUIT. PROBABLE CAUSE WAS A REA  
LITY DIRECTIVE.

CORRECTIVE ACTION-NO CORRECTIVE ACTION WAS TAKEN AS A RESULT OF THE ANALYSIS CANCELLATION.

ELECTRICAL-GSE POWER GENERATION	FAR-LV-9B-48-222-F FREQUENCY METER	FAR 93-94300-001	640816	SEA/ETH NO 6207	640816	SEA/ETH YES YARO NO 6207
S6000004						

FAILURE MODE-FAIL DURING OPERATION. THE METER IS PART OF THE ELECTRICAL CHECKOUT SET WHICH MONITORS THE 400-CYCLE 7  
OVER FREQUENCY. FAILURE OCCURRED WHEN THE GENERATOR WAS TURNED ON FOR A DAILY CHECK AND THE METER BEGAN TO SMOKE. AF  
TER DISASSEMBLY, A SHORT WAS DISCOVERED BETWEEN GROUND AND THE RECTIFIER DC OUTPUT CIRCUIT. PROBABLE CAUSE WAS A REA  
LITY DIRECTIVE.

GENERAL DYNAMICS  
CONVAIR DIVISION

15 JUN 1966

DIFFICULTIES REVIEW-ELECTRICAL SYSTEM-GSE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
LATER LEAD SCARING AGAINST THE CIRCUIT BOARD, GRADUALLY WEARING THROUGH TO MAKE AN ELECTRICAL PATH.						

CORRECTIVE ACTION-THE FAILURE WAS CONFIRMED. IT WAS RECOMMENDED THAT THE VENDOR IMPROVE QUALITY CONTROL TO PREVENT ACCEPTANCE OF BOARDS WITH RESISTOR LEADS EXTENDING BEYOND THE BOLTER POINTS.

ELECTRICAL-GSE POWER GENERATION	FAR-LV-88-53-223 CIRCUIT BOARD, TRANSISTOR	FAR 27-00845-1	631216	12/FTR	YES AUTONICS	000798
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FAILURE MODE-ERRATIC OPERATION. THE RELAY OPERATED INTERMITTENTLY DURING A PROCEDURE PERFORMANCE. THIS IS A VOLTAGE -SENSING RELAY MONITORING THE 159-VOLT SUPPLY TO THE PROGRAMMER, AND CONTAINS TRANSISTOR CIRCUIT BOARDS. FAILURE ANALYSIS TESTS SHOWED BREAKDOWN OF THE Q6 TRANSISTOR WHEN INCORRECT VOLTAGE WAS APPLIED TO THE Emitter-BASE JUNCTION. THIS MALFUNCTION IS DUE TO FAULTY INTERNAL DESIGN.

CORRECTIVE ACTION-THE VENDOR WAS REQUESTED TO MODIFY THE DESIGN. ECP 7760 AND TCP 0127 WERE ISSUED TO COVER REPLACEMENT OF 21 RELAYS. THE FAILURE WAS NOT CONFIRMED.

ELECTRICAL-GSE POWER GENERATION	63-0872/B2-401-00-63 400 CYCLE GENERATOR	COUNTDOWN 030001	\$3D B2	YES NO	000803
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FAILURE MODE-OUT OF SPECIFICATION. UNABLE TO MAINTAIN RATE LOCK.

SYSTEM EFFECT-IMPROPER ANALOG SIGNALS, HIGH 400 CYCLE NOISE LEVEL AFFECTED RATE BEACON OUTPUT.

VEHICLE EFFECT-COUNTDOWN ABORTED AND RESCHEDULED.

CORRECTIVE ACTION-GENERATOR REPLACED.

ELECTRICAL-GSE POWER GENERATION	SP-88-48-238F MOTOR GENERATOR RESISTOR	FAR 27-08418-1	030785	12/FTR	YES KURZ-ROOT	000804
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FAILURE MODE-FAIL. DURING OPERATION, MOTOR GENERATOR SHUT DOWN DURING NORMAL OPERATION. CAUSE ATTRIBUTED TO VOLTAGE-ADJUST RESISTORS R-3 BEING OPEN. FAILURE ANALYSIS SHOWED RESISTORS FAILED AS RESULT OF COMBINED EFFECTS OF AGE, VIBRATION AND EXPOSURE TO MOISTURE AND SALT-LADEN AIR.

CORRECTIVE ACTION-CAPABILITIES OF ENCLOSING AND AIR CONDITIONING THE GENERATORS, AND REPLACING GENERATORS WITH STATIC POWER SUPPLIES ARE BEING STUDIED.

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GENERAL DYNAMICS  
CONVAIR DIVISION

OFFICIAL REVIEW-EDITORIAL SYSTEMS

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
ELECTRICAL-GSE POWER GENERATION	SF-98-48-223-f MOTOR-GENERATOR	FAR 27-06416-1	#21210	12/ETR	YES KURZ-ROOT NO	

FAILURE MODE-FALL DURING OPERATION. BURN OUT OF RECTIFIER CR-13 CAUSED FAILURE OF MOTOR GENERATOR MD-2. ALTHOUGH THIS PARTICULAR RECTIFIER WAS NOT RECEIVED FOR AN. L7818, SEVERAL OTHER FAILED. BELLUM RECTIFIERS WERE ANALYZED AND THEIR FAILURES ATTRIBUTED TO AGING (REFERENCE PAR H-98-42-216P). PARTS RECEIVED FOR ANALYSIS WERE EXTREMELY DIRTY.

CORRECTIVE ACTION-EFFECTIVE APPROXIMATELY 10 APRIL 63 EACH MOTOR-GENERATOR UPON FAILURE WILL BE CYCLED THROUGH FOLLOWING OVERHAUL PROCEDURE-(A) COMPLETE DISASSEMBLY. (B) 24-HOUR BAKE AT 200 DEG. F. (C) BEARING AND BRUSH REPLACEMENT. (D) FRICOLITE ENCAPSULATION OF ROTOR AND STATOR. (E) MACHINING OF COLLECTOR RINGS AND (F) REASSEMBLY AND TEST. FEASIBILITY STUDIES OF PROVIDING GENERATOR WITH ENCLOSED AIR CONDITIONED ENVIRONMENT AND OF REPLACING MU-2 GENERATORS WITH STATIC POWER SUPPLY IS BEING STUDIED.

LECTRICAL-CSE  
POWER GENERATION

FAILURE MODE-FAIL DURING OPERATION, ETR POWER FAILED CAUSING LOSS OF ALL COMPLEX POWER EXCEPT EMERGENCY POWER. A NEW POWER POLE WAS BEING INSTALLED.

STEM EFFECT-OPERATION STOPS PREMATURELY.

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OWNER GENERATION NO  
GENERATOR MAGNETO CONDENSER 61064

EMERGENCY ELECTIONS OF RECONSTITUTIONAL COUNCIL. ELECTIONS NOT START.

SHILOH EFFECT-MONEY

CONNECTIVE ACTIVITIES

3R-40-D17  
GENERATOR-THERMAL TIME DELAY RELAY  
ELECTRICAL-SE  
DYNAMIC GENERATION

**PROBLEMS CAUSED BY FAILURE OF TIME-Delay RELAY WHICH APPLIES FULL VOLTAGE TO H/S AFTER H/C HAS STARTED ON REDUCED VOL.**

18 JUN 1966

## DIFFICULTIES REVIEW-ELECTRICAL SYSTEM-GSE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE	SITE	PRI	VENDOR NAME VENDOR PART NO
699849						

CORRECTIVE ACTION-PROBLEM BROUGHT TO ATTENTION OF KURZ-ROOT MANUFACTURER OF H/G SET. KURZ-ROOT TO TAKE ANY NECESSARY ACTION. GDS/C TO MAINTAIN SURVEILLANCE OVER ITEM.

ELECTRICAL-GSE POWER GENERATION	EM1341/P3-402-00-17	FRF	17D 590809	13 24.2	YES NO	699850
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FAILURE MODE-OUT OF EXPECTED TEST VALUE. GROUND AC POWER WAS OPERATING BELOW EXPECTED TEST VALUE CAUSING ERRATIC OPERATION OF RATE BEACON AND OTHER VEHICLE SYSTEMS WHEN POWER RETURN TO EXTERNAL WAS ACCOMPLISHED AT COMPLETION OF PLI GHT READINESS FIRING.

SYSTEM EFFECT-OPERATION TOO LOW. GROUND AC POWER SYSTEM WAS OPERATING 1.5 VOLTS BELOW NORMAL.

VEHICLE EFFECT-NONE.

CORRECTIVE ACTION-UNKNOWN.

ELECTRICAL-GSE POWER GENERATION	EM1332/P4-402-00-10	FRF	10D 590903	14 -2100	YES NO	699849
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FAILURE MODE-OUT OF SPECIFICATION. DURING FLIGHT READINESS FIRING COUNTDOWN THE GROUND 400 CYCLE AC GENERATOR FREQUENCY INCREASED TEMPORARILY TO 405 CPS AND RETURNED TO 401 CPS FOR REASONS NOT DETERMINED.

SYSTEM EFFECT-ERRATIC OPERATION. THE ELECTRICAL SYSTEM OPERATED OUT OF SPECIFICATION TEMPORARILY DURING COUNTDOWN DUE TO AN UNDETERMINED GROUND AC GENERATOR TEMPORARY MALFUNCTION.

VEHICLE EFFECT-COUNTDOWN DELAYED. THE FRF COUNTDOWN HAS DELAYED 15 MINUTES FOR INVESTIGATION OF THE MALFUNCTION. WHEN THE FREQUENCY RETURNED TO NORMAL &STEADY OPERATION FOR FIVE MINUTES IT WAS DECIDED TO RESUME THE COUNTDOWN.

CORRECTIVE ACTION-NONE INDICATED.

ELECTRICAL-GSE POWER GENERATION	AIC-27-051/P3-402-00-05 GENERATOR TUBE	COUNTDOWN	SD 590802	13/ETR	YES NO	699814
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FAILURE MODE-ERRATIC OPERATION. THE 400 CPS GENERATOR FREQUENCY FLUCTUATED SLIGHTLY DURING THE LATTER PORTION OF THE COUNTDOWN.

SYSTEM EFFECT-NONE.

VEHICLE EFFECT-NONE.

CORRECTIVE ACTION-REPLACED THE THYRATRON TUBE.

19 JUN 1986

GENERAL DYNAMICS  
CONVAIR DIVISION

## DIFFICULTIES REVIEW-ELECTRICAL SYSTEM-GSE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
ELECTRICAL-GSE POWER GENERATION	F7A4575/P2-302-00-04	COUNTDOWN	4C 590123	12 -1300	NO NO	699379
<b>FAILURE MODE-FAIL DURING OPERATION. CAUSE WAS A FIRE IN THE ETR CRITICAL POWER TRANSFORMER BANK.</b>						
<b>SYSTEM EFFECT-COUNTDOWN STOPS PREMATURELY. POWER LOST.</b>						
<b>VEHICLE EFFECT-COUNTDOWN DELAYED.</b>						
<b>CORRECTIVE ACTION-UNK NORM.</b>						
ELECTRICAL-GSE POWER DISTRIBUTION	31-7-9B-40-3340 UMBILICAL CABLE	FAR 69-68088-1	660101 N/A	ETR 699329	NO NO	699329
<b>FAILURE MODE-ELECTRICAL OPEN. THE UMBILICAL CABLE REPORTEDLY FAILED WHEN NO CONTINUITY WAS FOUND BETWEEN PLUG 202 P IN AND PLUG 600PS PIN 10.</b>						
<b>CORRECTIVE ACTION-NOT A FAILED ITEM. BLUE PRINT INADVERTENTLY MISREAD WHEN MAKING CONTINUITY CHECK. INFORMATION OML Y BAR SLV-9B-40-3023 REQUESTING A RECORD OR DRAWING MAINTENANCE CHANGE BE MADE TO CLARIFY THE DRAWING. ETR NOTIFIED OF ANALYSIS BY TELCOM.</b>						
ELECTRICAL-GSE POWER DISTRIBUTION	FAR-SLV-9B-53-274-F LOCK ASSEMBLY SHAFT	FAR N/A 69-68088-1	650930 N/A	12/ETR 699765	YES CANNON NO 317-61517-004	699765
<b>FAILURE MODE-STRUCTURAL. THE SOLENOID RELEASE SHAFT BROKE WHILE COCKING THE RELEASE MECHANISM OF THE LOCK ASSEMBLY. THE LOCK PROVIDES ATTACHING AND RELEASING FUNCTIONS FOR UMBILICAL CABLES. ANALYSIS REVEALED A HECKING DOWN OF THREAD O RELIEF THROUGH REPEATED LOADINGS.</b>						
<b>CORRECTIVE ACTION-THE FAILURE WAS CONFIRMED. SIMILAR FAILURES HAD OCCURRED BEFORE (REF. FAR-CT-9B-53-060) AND CORRE CTIVE ACTION WAS TAKEN TO REPLACE THE TYPE 303 STAINLESS STEEL WITH TYPE 286-A. HOWEVER, THE REPLACEMENT HAD NOT BEEN ACCOMPLISHED AT SLV SITES AT THE TIME OF THIS FAILURE.</b>						
ELECTRICAL-GSE POWER DISTRIBUTION	62-4M0-01-15 UMBILICAL CONNECTOR	COMPOSITE-FRD/DPL	650	62	YES NO	
<b>FAILURE MODE-OUT OF TOLERANCE. DURING POST TEST INVESTIGATION TO DETERMINE THE CAUSE OF AN INTEGRATOR NULLING FAULT AND TWO SHRD FAULTS, A LOOSE P1001 UMBILICAL WAS UNCOVERED.</b>						
<b>SYSTEM EFFECT-NONE.</b>						
<b>VEHICLE EFFECT-COMPOSITE ABORTED AND RESCHEDULED. DURING THE LEAK CHECK HOLD, THE SHRD DETECTOR ILLUMINATED TWICE F OR A PERIOD OF 12 AND 14 SECONDS; THEN DISAPPEARED FOR THE DURATION OF THE OPL. A SECOND FAULT OCCURRED DURING THE P</b>						

13 JUN 1966

GENERAL DYNAMICS  
CONVAIR DIVISION

## DIFFICULTIES REVIEW-ELECTRICAL SYSTEM-GSE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
ROPELLANT GRAIN SEQUENCE	INTEGRATOR NULLING-MVENT RED AND LOK AND FUEL WERE DRAINED ACCORDING TO DPL ABORT PROCEDURE					690207
ELECTRICAL-GSE POWER DISTRIBUTION	F1A850D/P3-4C0-08-223 UMBILICAL	COMPOSITE-J FACT 690707	2250 -13	15/ETR MD		690051
	FAILURE MODE-PREMATURE OPERATION. LAUNCH CONTROL SIMULATOR SWITCHES 23 AND 22 (2 INCH AND 6 INCH MOTION) WERE PREMATURELY ACTIVATED THROUGH HUMAN ERROR.					
	SYSTEM EFFECT-OPERATION STARTS TOO EARLY. PREMATURE UMBILICAL EJECTION. ABSENCE OF ENGINE START SEQUENCE AND DELAY OF SOME PROCURAL PLUS COUNT EVENTS FOLLOWED.					
	VEHICLE EFFECT-COMPOSITE DELAYED.					
CORRECTIVE ACTION-UNKNOWN.						
ELECTRICAL-GSE POWER DISTRIBUTION	FAR-CT-98-330-077 CABLE ASSEMBLY	FAR	690630	ETR	YES LIQUIDMETER NO 1-401-039	690207
	FAILURE MODE-ELECTRICAL OPEN. AN OPEN CIRCUIT WAS DISCOVERED AT PIN J, CONNECTOR P101. DURING INITIAL RINGOUT, A WI RE WAS FOUND BROKEN AT PIN J BECAUSE OF IMPROPER SUPPORT AT THE SOLDER JOINT. IMPROPER SUPPORT CAUSES STRAIN ON WIRE B WHEN THE CABLE IS FLEXED. ALSO, THERE WAS EVIDENCE OF IMPROPER SOLDERING, WIRE TYING, AND INSULATION STRIPPING.					
	CORRECTIVE ACTION-THE FAILURE WAS CONFIRMED. IT IS RECOMMENDED THAT THE VENDOR IMPROVE THE CABLE DESIGN AND REVIEW THEIR MANUFACTURING AND INSPECTING TECHNIQUES TO IMPROVE PRODUCT QUALITY. EXPEDITE THE DESIGN AND MANUFACTURE OF COM VAL-BUILT CABLE, P/N 55-44308, TO REPLACE THE VENDOR'S CABLE.					
ELECTRICAL-GSE POWER DISTRIBUTION	LW-98-43-3319-F UMBILICAL PLUG	FAR 7-08234-901	690914	15/ETR MD	YES 60C	690003
	FAILURE MODE-CONTAMINATION. METAL CHIPS WERE FOUND BETWEEN THE FRONT AND REAR INSULATORS. THE METAL CHIPS BETWEEN T HE FRONT AND REAR INSULATORS ORIGINATED WHEN THE FLANGES WERE DRILLED.					
	CORRECTIVE ACTION-THE 60C COMPONENT REWORK DEPARTMENT STATES A MORE COMPLETE INSPECTION WILL BE PERFORMED.					

GENERAL ORNAMENTS

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ELECTRICAL REVIEW-ELECTRICAL REVIEW-641

TEST/REPORT NUMBER FAILED COMPONENT NAME		QIF DATA SOURCE PART NUMBER	VEHICLE DATE DIFF	SITE TIME DIFF	PRI OTH	VENDOR NAME VENDOR PART NO
SYSTEM SUB-SYSTEM	FTAGS14/PZ-4CO-Q3-804 UNB/LIC/LA	COMPOSITE-3 -ACY	2040	18/EIR	NO	6930311

FAILURE MODE-PREATURE OPERATION. ALL UNUSUALS, EXCEPT PILOTS, WERE UNINTENTIONALLY EJECTED DURING THE MINUS COUNT DOWN TO AN INADVERTENT GENERATION OF A 2 INCH MOTION SIGNAL.

SYSTEM EFFECT—OPERATION STARTS TOO EARLY. THE UMBILICALS WERE INADEQUATELY EJECTED PRIOR TO PLANNED SHUTDOWN TIME.

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CORRECTIVE ACTION-THE SOURCE OF THIS INADVERTENT SIGNAL WAS DETERMINED AND ACTION WAS TAKEN TO PREVENT RECURRENT E

ELECTRICAL-GSE  
POWER DISTRIBUTION  
FAR-CT-2B-40-05F  
UMBILICAL CONNECTOR  
FAR  
1560  
SEA/ETR YES CANNON  
03022.  
NO 317-6157-004

FAILURE MADE-OUT OF SPECIFICATION. THE LOCK ASSEMBLIES WHICH HOLD THE UMBILICAL ELECTRICAL PLUGS TO THE MISSILE AND EJECT THE PLUG DURING LAUNCHING WERE REJECTED WHILE PERFORMING CONVAIR SURVEY INSTRUCTIONS 8-63 AND 10-63 BECAUSE OF UNDESIRABLE MAIN SHAFTS. MAINSHAFTS DID NOT MEET REQUIREMENTS OF SURVEY INSTRUCTION 10-63 REV. A.

THE SHAFT IS PART OF AN UMBILICAL CABLE LOCK ASSY THAT EJECTS THE UNBILICAL FROM THE FAILURE MODE-OUT OF TOLERANCE. THE SHAFT THREADS WERE OUT OF TOLERANCE WHEN MEASURED PER SURVEY INSTRUCTION S110-63A ISSUED AS THE RESULT OF AN EARLIER THREAD FAILURE IN ONE OF THE SHAFTS. THREADS WERE EXAMINED BY AN OPTICAL COMPARATOR AND WERE WITHIN TOLERANCE. NO DEFECTS WERE OBSERVED.

CONNECTIVE TISSUE

ELECTRICAL-GAC  
POWER DISTRIBUTION  
S1R-01576-CO-Q1-DACS  
JUMPER CABLE

FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. AT 7:35 MINUTES A JUMPER WAS DISCOVERED MISSING FROM THE GANTRY TELESTICK BACK.

WILHELMUS CECI-OPECCANALOGUE MÖRSELER.

15 JUN 1964

GENERAL MANAGERS  
CONVAIR DIVISION

DIFFICULTIES REVIEW-ELECTRICAL SYSTEM-GSE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
000001						

VEHICLE EFFECT-COMPOSITE DELAYED. A HOLD OF 9 MINUTES WAS REQUIRED TO INSTALL THE JUMPER.

CORRECTIVE ACTION-THE JUMPER WAS INSTALLED.

ELECTRICAL-GSE POWER DISTRIBUTION	FAR-CI-98-33-066 UMBILICAL CONNECTOR	FAR 53-01623-3	050120	36A/ETR	YES CANNON NO 039781-001	000002
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FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. THE CONNECTOR LOCK SHAFT BROKE IN THREADS. THE CONNECTOR IS IN THE LANDLINE FIRST STAGE UMBILICAL CABLE. IT FAILED TO EJECT EITHER MECHANICALLY OR ELECTRICALLY. THE FAILURE WAS CORRECTED. EXAMINATION REVEALED THAT THE LOCK SHAFT THREADS HAD BEEN CUT DEEP, REDUCING THE ROOT DIAMETER TO MARGINAL LENGTH.

CORRECTIVE ACTION-IT WAS RECOMMENDED THAT THE VENDOR SPECIFY A MINIMUM MINOR DIAMETER ON THE THREADS. INCREASE THREAD SIZE, AND CHANGE THE SHAFT MATERIAL.

ELECTRICAL-GSE POWER DISTRIBUTION	FTAG301/P224CO-03-268 MISSILE BATTERY TIMER WIRING	COMPOSITE-B FACT 41030	268D -100	12 -100	YES NO	000003
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FAILURE MODE-ELECTRICAL OPEN. WHEN THE VEHICLE WAS SWITCHED TO INTERNAL POWER, THE INTERNAL POWER READY LIGHT ON THE TEST CONDUCTORS FUNCTION SAFC RELEASE PANEL DID NOT ILLUMINATE AS EXPECTED. THIS FUNCTION IS IN THE RELEASE LADDER AND WAS SIMULATED THROUGH THE LAUNCH CONTROL SIMULATOR. IT WAS FOUND THAT THE MAIN MISSILE BATTERY TIMER ON THE MISSILE POWER MONITOR PANEL HAD BEEN INADVERTENTLY LEFT DISCONNECTED.

SYSTEM EFFECT-NONE.

VEHICLE EFFECT-COMPOSITE DELAYED. THE COMPOSITE WAS DELAYED TO LOCATE THE TROUBLE AND SIMULATE THE FUNCTION THROUGH THE LAUNCH CONTROL SIMULATOR.

CORRECTIVE ACTION-STEPS WERE TAKEN TO PREVENT RECURRANCE OF THIS DIFFICULTY.

ELECTRICAL-GSE POWER DISTRIBUTION	09C2147-3 UMBILICAL CONNECTOR	UTP-BLT 27-04998-13	040914	FACTORY NO	YES CANNON 017059-1540	000004
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FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. DURING 4.P.T., THE SPECIMEN FAILED TO ELECTRICALLY EJECT. MALFUNCTION INVESTIGATION REVEALED ONE OF THE SOLENOID LEADS WAS SEVERED AT THE POINT WHERE THE LEAD PASSES THROUGH A SLOT IN THE SOLENOID HOUSING. THE LEADS WERE MANUFACTURED APPROXIMATELY ONE-HALF INCH LONGER THAN SPECIFIED. THIS ALLOWS THE LEAD TO BE PINCHED BETWEEN THE ADAPTER FACE AND SOLENOID HOUSING FACE WHEN TIGHTENING THE LOCK ASSEMBLY.

CORRECTIVE ACTION-CARR F-4347-AC-1 ADVISED GO/OP TO IMPOSE STRICKER SURVEILLANCE ON SOLENOID LEAD LENGTH AND TERMINATION. AS OF 11-11-64 THE VENDOR INITIATED USE OF GAGE TO CHECK WIRE LENGTH, REWORKED ALL ITEMS IN-HOUSE, AND REVISED CUTTING TECHNIQUES. SURVEY INSTRUCTION 151-64 WAS ISSUED TO ACCOMPLISH A SURVEY OF ALL UMBILICAL PLUGS FOR NEVER ED LEADS.

GENERAL DYNAMICS  
CONTRACT DIVISION

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DIFFICULTIES REVIEW-ELECTRICAL SYSTEM-GCE

TEST REPORT NUMBER FAILED COMPONENT NAME							DIF DATA SOURCE PART NUMBER			VEHICLE DATE			SITE TIME			PRI OTR			VENDOR NAME VENDOR PART NO		
SYSTEM SUB-SYSTEM																					
ELECTRICAL-GAC POWER DISTRIBUTION							69C2147.1	UMBILICAL CONNECTOR		UTP-PR1	UTP-PR1	UTP-PR1	040802	FACTORY	YES CANNON				NO Q1Y069-1/-4A		

FAILURE MODE-CONTAMINATION. FOLLOWING THE RAIN TEST, HYDROSTATIC PRESSURE AND INSULATION RESISTANCE WAS OUT-OF-TOLERANCE. THE SPECIMEN WAS UNHEATED AND WATER WAS FOUND AROUND THE CONTACTS. EXAMINATION REVEALED THAT WATER WAS ENTERING THE PLUG THROU-

RECOMMENDED TO VENDOR THAT DOOT BE CEMENTED AT ATTACHMENT POINTS. VAF 2T-078985-B-VCP-022 AND  
CORRECTIVE ACTION-SD/C RECOMMENDED TO VENDOR THAT CEMENT BOOT WAS APPROVED BY DESIGN 10-30-64. TMX BANCAP 10-1, BANVAN 10-090 WAS SENT TO SIT  
2T-078985-S-VCP-019 TO CEMENT BOOT WAS APPROVED BY DESIGN 10-30-64. TMX BANCAP 10-1, BANVAN 10-090 WAS SENT TO SIT  
FORWARDING INFORMATION (REF. 100-1000-0000-0000-0000)

ELECTRICAL-CIC	882147-3	UTP-PAT	640902	FACTORY YES CANNON
CENTER DISTRIBUTION	UMBILICAL CONNECTOR	87-07096-5		NO 017090-1044

FAILURE MODE-FAIL DURING OPERATING. FOLLOWING Y-AXIS VIBRATION (RANON ONLY, 2 G SQUARE PER CPS) THE SPECIMEN WOULD NOT MECHANICALLY EJECT WHEN A LAN-YARD FORCE OF 120 LBS. WAS APPLIED. (SPEC IS 25 TO 100 LBS) SEPARATION WAS ACCOMPLISHED BY ROCKING THE CONNECTOR. EXCESSIVE CONTACT WEAR PRODUCED BY MISALIGNMENT CAUSED INCREASED SEPARATION FORCES

**CORRECTIVE ACTION-SPECIMEN 18D FOR REPLACEMENT. CARR P-4343-SC-1 ISSUED TO AMEND AFFECTION HB-8 & ACCUMINI  
MC PIN AND SCOTT ATTENENT DURING POTTING.**

69214-1.1 WIRELESS CONNECION  
69214-1.1 ELECTRICAL-SSE  
WIRELESS DISTRIBUTION  
WIRELESS CONNECION  
UP-FRT 27-04999-13  
940609 FACTORY AES CHANNEL  
NO D11098-110

CHANGING WATER TO ENTER THE MATED CONNECTOR.

**CORRECTIVE ACTION-PART I-0 TO REMOVE OLD SEAL AND REPLACE WITH A NEW ONE, THEN REPEAT THE RAIN TEST. O.C. INSPECTI-**  
**ON HAS BEEN MADE ON ALL PARTS RECEIVED FROM THE MANUFACTURER. NOTE - BECAUSE UNDILUTED CONNECTOR TEST SPECIMEN**

ELECTRICAL-GSE  
OWNER DISTRIBUTION  
PTA0401/PB-4CO-01-195  
UMBILICAL CONNECTOR  
COMPOSITE-B FACT  
192D  
18/21A  
64010  
YES  
NO

**FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. ALL ENGINE VALVES CLOSED. LIGHTS DID NOT ILLUMINATE ON THE PROPELLER PANEL AFTER THE UNDILICUALS WERE REINSTALLED. THIS WAS CAUSED BY A POOR CONNECTION AT THE UNDILICUAL.**

13 JUN 1986

GENERAL DYNAMICS  
CONVAIR DIVISION

## DIFFICULTIES REVIEW-ELECTRICAL SYSTEM-GSE

SYSTEM	REPORT NUMBER	DIF DATA SOURCE	VEHICLE	SITE	PRI	VENDOR NAME
SUB-SYSTEM	FAILED COMPONENT NAME	PART NUMBER	DATE DIF	TIME DIF	OTH	VENDOR PART NO
<b>SYSTEM EFFECT-NONE.</b>						
<b>VEHICLE EFFECT-NONE.</b>						
<b>CORRECTIVE ACTION-THE UMBILICAL WAS TIGHTENED.</b>						
ELECTRICAL-GSE	FAR-CT-9B-400-032 UMBILICAL CONNECTOR	FAR 35-023414-1	640818	36A/ETR	YES CANNON ELECTRI	000016
<b>FAILURE MODE-STRUCTURAL. THE UMBILICAL CABLE REPORTEDLY FAILED DURING PRE-INSTALLATION CHECKOUT AS A RESULT OF A BRKEN FRONT INSULATOR ON THE UMBILICAL PLUG. MANUAL EJECTION OF THE TEST WASHER ALLOWED THE FULL SPRING FORCE TO IMPACT THE FRONT INSULATOR CAUSING 2 OF THE 4 CORNER SCREWS TO BREAK.</b>						
<b>CORRECTIVE ACTION-GDC MARRIED APPROPRIATE PERSONNEL NOT TO EJECT THE TEST WASHER. FOLLOW VENDOR DNG INSTRUCTIONS. REQUEST VENDOR TO PLACE WARNING ON UMBILICAL PLUG NOT TO EJECT THE TEST WASHER. REDESIGN FRONT AND REAR INSULATOR SO THAT THE FRONT INSULATOR CAN BE REPLACED IF BROKEN. CHANGE FACEPLATE MATERIAL AS PHENOLIC BOARD IS WEAK.</b>						
ELECTRICAL-GSE	FAR-CT-9B-400-049 POWER DISTRIBUTION	FAR 27-00416-803	640803	36A	YES CANNON ELECTRI	000016
<b>FAILURE MODE-STRUCTURAL. THE UMBILICAL CABLE WAS REJECTED DURING PRE-INSTALLATION INSPECTION BECAUSE THE UMBILICAL PLUG HAD A BROKEN FRONT INSULATOR. FAILURE WAS CONFIRMED. THE 4 CORNER HOLES WERE COUNTERBORED TOO DEEP. MANUAL EJECTION OF THE TEST WASHER ALLOWED THE FULL SPRING FORCE TO IMPACT THE FRONT INSULATOR CAUSING IT TO BREAK AT THE 4 CORNER SCREWS.</b>						
ELECTRICAL-GSE	FAR-CT-9B-400-049 POWER DISTRIBUTION	FAR 27-00416-803	640803	36A/ETR	YES CANNON ELECTRI	000016
<b>FAILURE MODE-STRUCTURAL. THE UMBILICAL CABLE WAS REJECTED DURING PRE-INSTALLATION INSPECTION BECAUSE THE UMBILICAL PLUG HAD A BROKEN FRONT INSULATOR. BINDING WAS CAUSED BY POTTING COMPOUND FORCING AND HOLDING THE LOCK ASSEMBLY AWAY OFF CENTER IN THE UMBILICAL PLUG.</b>						
<b>CORRECTIVE ACTION-RECOMMENDED INCORPORATION OF A SEAL ON THE REAR INSULATOR TO THE SHELL TO PREVENT POTTING COMPOUND FROM SETTING BETWEEN FRONT AND REAR INSULATORS.</b>						

15 JUN 1966

GENERAL DYNAMICS  
CONVAIR DIVISION

## DIFFICULTIES REVIEW-ELECTRICAL SYSTEM-GSE

SYSTEM SUB-SYSTEM		TEST/REPORT NUMBER FAILED COMPONENT NAME	OIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
ELECTRICAL-GSE POWER DISTRIBUTION	FARCT-88-400-049 UMBILICAL CONNECTOR INSULATION	FAR 53-06137-601	640803 36A/EIN	101636-601	NO	YES	JEFFERSON ELECTRIC TRIC

FAILURE MODE-STRUCTURAL. THE UMBILICAL CABLE WAS REJECTED DURING PRE-INSTALLATION INSPECTION BECAUSE THE UMBILICAL PLUG HAD A BROKEN FRONT INSULATOR. FAILURE WAS CONFIRMED. THE FOUR CORNER HOLES WERE COUNTERBORED TOO DEEP. MANUAL EJECTION OF THE TEST WASHER ALLOWED THE FULL SPRING FORCE TO IMPACT THE FRONT INSULATOR CAUSING IT TO BREAK AT THE FOUR CORNER SCREWS.

CORRECTIVE ACTION-RECOMMENDED THAT A WARNING TO APPROPRIATE PERSONNEL BE SENT STATING THAT THEY SHOULD NOT EJECT TEST WASHER AND FOLLOW VENDORS DVG INSTRUCTIONS. REQUEST VENDOR TO PLACE WARNING ON UMBILICAL PLUG NOT TO EJECT THE TEST WASHER AND TO REDESIGN FRONT AND REAR INSULATOR SO FRONT INSULATOR CAN BE REPLACED IF BROKEN; TAKE ACTION NECESSARY TO PREVENT COUNTERBORING CORNER HOLES TOO DEEPLY.

SYSTEM SUB-SYSTEM		TEST/REPORT NUMBER FAILED COMPONENT NAME	OIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
ELECTRICAL-GSE POWER DISTRIBUTION	FARCT-88-400-049 UMBILICAL CONNECTOR INSULATION	FAR 53-06141-1	640731 36A/EIN	NO	C	NO	36A/EIN CANNON ELECTRIC

FAILURE MODE-STRUCTURAL. THE UMBILICAL CABLE WAS REJECTED DURING PRE-INSTALLATION INSPECTION BECAUSE THE UMBILICAL PLUG HAD A BROKEN FRONT INSULATOR. FAILURE WAS CONFIRMED. THE 4 CORNER HOLES WERE COUNTERBORED TOO DEEP. MANUAL EJECTION OF THE TEST WASHER ALLOWED THE FULL SPRING FORCE TO IMPACT THE FRONT INSULATOR CAUSING IT TO BREAK AT THE FOUR CORNER SCREWS.

CORRECTIVE ACTION-GDC WARNED APPROPRIATE PERSONNEL NOT TO EJECT THE TEST WASHER, FOLLOW VENDOR INSTRUCTIONS. REQUEST VENDOR TO PLACE WARNING ON UMBILICAL PLUG NOT TO EJECT THE TEST WASHER, REDESIGN FRONT AND REAR INSULATOR SO THAT THE FRONT INSULATOR CAN BE REPLACED IF BROKEN; TAKE ACTION NECESSARY TO PREVENT COUNTERBORING CORNER HOLES TOO DEEPLY.

SYSTEM SUB-SYSTEM		TEST/REPORT NUMBER FAILED COMPONENT NAME	OIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
ELECTRICAL-GSE POWER DISTRIBUTION	FTAB468/P3-4CO-01-216 POWERSUPPLY RECTIFIER	COMPOSITE-G FACT 640817	2160 13/EIN	NO	NO	YES	640817

FAILURE MODE-OUT OF SPECIFICATION. THE MISSILE 28VDC POWER, AS INDICATED ON THE MISSILE POWER PANEL METER, COULD NOT BE ADJUSTED ABOVE 26.6 VDC. THIS WAS CAUSED BY A DEFECTIVE RECTIFIER STACK IN THE POWER SUPPLY.

SYSTEM EFFECT-OPERATION TOO LOW. THE NOMINAL VOLTAGE SETTING IS 26 PLUS OR MINUS 1 VDC. THE RED LINE LIMIT IS 26.5 VDC.

VEHICLE EFFECT-NONE.

CORRECTIVE ACTION-THE DEFECTIVE RECTIFIER STACK WAS REPLACED.

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GENERAL DYNAMICS CORPORATION

SIEGEL VERSUS SCHWEMER: ECONOMIC ORIENTATIONS

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE	BITE DIF TIME	PRI DIF QTH	VENDOR NAME VENDOR PART NO
ELECTRICAL-GSE POWER DISTRIBUTION	AAB-0033/PB-CO-02-GACS RELAY	COMPOSITE-J FACT 640015	1390 0	36A/STR YES NO		

FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. CONTAMINATION OF THE 2-INCH SIMULATOR LUGS DID NOT ALLOW THE 2-INCH RISE SIGNAL TO BE SENT.

SYSTEM EFFECT-OPERATION DOES NOT START. THE SIMULATOR FAILED TO SEND THE 2 INCH RISE SIGNAL. UNBILICALS P1002, P1003, P1005, P1007, AND P4001 HAD TO BE EJECTED MANUALLY.

VEHICLE EFFECT-COMPOSITE RESCHEDULED. THE SEQUENCE OF EJECTION OF THE UNBILICALS RESULTED IN THE CENTAUR PROGRAMMER BEING COMMANDED TO SAFE BY THE GSE THEREBY INVALIDATING THE TEST AND REQUIRING A RERUN.

CORRECTIVE ACTION-THE LUGS WERE REPLACED AND THE TEST WAS RERUN SATISFACTORILY.

FAILURE MODE-STRUCTURAL. DURING THE MALFUNCTION INVESTIGATION, A SMALL AMOUNT OF POTTING WAS FOUND ON THE INSIDE COUNTERFACE OF THE PLUG FACE. THIS LEAKAGE WAS DUE TO INADEQUATE CEMENTING OF THE SEAL RING TO THE INSERT AND A REDUCED SEAL SECTION FROM STRETCHING THE SEAL WHILE ASSEMBLING THE SHELL HALVES.

FAILURE MODE-OUT OF TOLERANCE. DURING EXAMINATION OF PRODUCT, THE CABLE ENTRY AND THE O.D. ON THE LOCK ASSEMBLY HOU

FAILURE MODE-OUT OF TOLERANCE. DURING EXAMINATION OF PRODUCT, THE CABLE ENTRY AND THE O.D. ON THE LOCK ASSEMBLY WOU

**ELECTRICAL-GSC**  
**POWER DISTRIBUTION**  
LY-98-4-0-3249-F  
UNIVERSICAL CONNECTION  
**FAR**  
27-000012-007

**FAILURE MODE-FAIL DURING OPERATION.** THE CABLE FAILED WHEN THE PROGRAMMER SAFE LIGHT DROPPED OUT ON THE BLOCKHOUSE P-HANDLES DURING A LAUNCH TEST. THE CABLE FAILURE IS ATTRIBUTED TO CORROSION ON THE WIRE TO PIN SOLDER JOINTS PRIOR TO ANALS P-008, P-009, P-010, P-011 AND P-012.

13 JUN 1986

GENERAL DYNAMICS  
CONVAIR DIVISION

## DIFFICULTIES REVIEW-ELECTRICAL SYSTEM-GSE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF TIME DIF OTH	DATE VENDOR PART NO	PRI VENDOR NAME
<b>698608</b>					
ELECTRICAL-GSE POWER DISTRIBUTION	#9A2146 UMBILICAL CONNECTOR	UTP-QUAL/PPT 27-04998-17	#40327 FACTORY YES CANNON NO 017059-1043		
ELECTRICAL-GSE POWER DISTRIBUTION	#9A2146 UMBILICAL CONNECTOR	UTP-QUAL/PPT 27-04998-17	#40321 FACTORY YES CANNON NO 017059-1043		
<b>698609</b>					
CORRECTIVE ACTION-EVALUATION OF POTTING COMPOUND IS BEING INITIATED. (TCP 0370, CCN 243, ASN 187-3, AND SPECIFICATION QN Q-73021).					
FAILURE MODE-OUT OF TOLERANCE. DURING THE CONTINUOUS CURRENT TEST AT AMBIENT CONDITIONS, THE VOLTAGE DROP ACROSS PIN 93 WAS OUT OF TOLERANCE. INVESTIGATION REVEALED PROBLEM DO TO PIN-SOCKET MISALIGNMENT. PART MATED WITH 27-04998-17					
CORRECTIVE ACTION-CARR ITEM F-3072-3C-1 WAS ISSUED TO FACTORY TO MINIMIZE PIN-SOCKET MISALIGNMENT BY IMPROVING THE IR POTTING TECHNIQUE. POTTING JIGS ARE NOW EMPLOYED. (REF. FRR 282A).					
FAILURE MODE-FAIL DURING OPERATION. DURING X-Y, AND Z- AXIS VIBRATION (SINE 35 G PEAK), PIN 93 AND 94 WAS INTERMITTENTLY OPEN. ALSO THE SPECIMEN WOULD NOT COMPLETELY EJECT WHEN 22VDC WAS APPLIED TO THE SOLENOID. DURING THE PROOF CYCLE PIN 91 CENTER CONDUCTOR, 93 SHIELD, 94 SHIELD, AND 95 SHIELD VOLTAGE DROP WAS OUT OF TOLERANCE. THIS PART IS MATED WITH 27-04998-17.					
CORRECTIVE ACTION-AN ADDITIONAL SET OF SPECIMENS WERE SUBJECTED TO MATED VIBRATION AT THE SAME ENERGY LEVEL EXCEPT THE SWEEP RATE WAS CHANGED FROM 4 TO 0.15 MINUTES PER OCTAVE (APPROX. 4 MIN DURATION PER AXIS). DURING Y-AXIS VIBRATION ON THE NEW SPECIMEN AT THE FASTER SWEEP RATE THE SPECIMEN FAILED. PIN 93 SHIELD INTERMITTENTLY OPENED. CAUSE WAS ATTRIBUTED TO PIN-SOCKET WEAR. SPEC 27-04992 REVISED MATED VIBRATION REQUIREMENT FROM SINE TO RANDOM ONLY. NEW PARTS PASSED THE TEST. (REF. FRR 146A).					
ELECTRICAL-GSE POWER DISTRIBUTION					
<b>698610</b>					
CORRECTIVE ACTION-REVISION D TO SPEC 27-04992 DELETED THE MAXIMUM CURRENT LIMIT AT MINUS 30 DEGREES F AND REVISED THE CURRENT LIMITS FOR YY DEGREES F. THE VOLTAGE DROP DISCREPANCY DISAPPEARED WHEN THE CONTACTS WERE CLEANED (REF. FR N 146A).					

GENERAL DYNAMICS  
CONVAIR DIVISION

15 JUN 1966 DIFFICULTIES REVIEW-EL-ELECTRICAL SYSTEM-68C

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	BITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
ELECTRICAL-68E POWER DISTRIBUTION	69A6116 UMBILICAL CONNECTOR	UTP-QUAL/PPT 87-04888-17	640281	FACTORY	YES CANNON NO Q37068-1048	688602
ELECTRICAL-68E POWER DISTRIBUTION	LV-68-40-3231-F CONNECTOR PIN	FAR 27-08143-803	640119	12/ETR	YES PACIFIC AUTOMA NO TION	688673
ELECTRICAL-68E POWER DISTRIBUTION	AAG6-00008/P2-4C0-01-108 RELAY WIRE	COMPOSITE-8 FACT 640103	198D	12/ETR	YES NO	688603
ELECTRICAL-68E POWER DISTRIBUTION	LV-68-40-230-F CABLE ASSEMBLY	FAR 27-08630	640103	12/ETR	YES REMOIX NO	688630

CORRECTIVE ACTION-THE HARDWARE WAS CONSIDERED ACCEPTABLE. HOWEVER, A CONFORMANCE CHANGE WAS MADE TO THE SPEC CONTROL DRAWING. TESTING WAS CONTINUED. (REF. FAR 166).

ELECTRICAL-68E  
POWER DISTRIBUTION

FAILURE MODE-ELECTRICAL OPEN. THE UMBILICAL CABLE FAILED WHEN P/N 65 OF ELECTRICAL CONNECTOR P-1002 DID NOT MAKE ELECTRICAL CONTACT. THE FAILURE IS ATTRIBUTED TO THE PIN BEING PUSHED TOO FAR INTO THE CONNECTOR ASSEMBLY. COAXIAL SHELLS MADE TO DIFFERENT LENGTHS HAD BEEN PROVIDED BY THE VENDOR AND ASSEMBLED IN THE CONNECTOR. THE CABLE SHOULD HAVE BEEN REMANUFACTURED WHEN CIC 22192 AND CIC 01742 WERE RELEASED ON 11 APRIL 1963. REPLACING THE CANNON P/N 312068-0603 CONNECTOR WITH A P/N 27-04998-27 CONNECTOR.

CORRECTIVE ACTION-ETR AND WTR PERSONNEL WERE REQUESTED TO INSPECT CONNECTORS CLOSELY FOR RECESSED PIN AND COAXIAL SHELLS. THE VENDOR'S RECORDS INDICATE THAT THE SHORTER SHELL HAS BEEN PURGED FROM THEIR SYSTEM AND FUTURE SHIPMENTS SHOULD CONTAIN ONLY THE LONGER SHELLS.

ELECTRICAL-68E  
POWER DISTRIBUTION

FAILURE MODE-PREMATURE OPERATION. A BROKEN WIRE AT J409-H CAUSED THE UMBILICAL TO FAIL TO EJECT. THIS WIRE SUPPLIED THE GROUND TO RELAY K805 IN THE KHA RELAY BOX. K805 SUPPLIED VOLTAGE TO EJECT THE UMBILICAL.

SYSTEM EFFECT-NONE.

VEHICLE EFFECT-NONE.

CORRECTIVE ACTION-THE BROKEN WIRE WAS REPAIRED PER IR601964.

ELECTRICAL-68E  
POWER DISTRIBUTION

FAILURE MODE-ELECTRICAL OPEN. AN INTERMITTENT OPEN CONNECTION FOUND AT PIN H ON PLUG J-409 OF CABLE CARRYING SIGNALS TO ELECTRICALLY EJECT UMBILICAL CABLES. FAILURE ANALYSIS INDICATED PROBLEM DUE TO BREAKING OF WIRE STRANDS NEAR BORDER WICK AT CONNECTOR PIN H. MICROSCOPIC EXAMINATION SHOWED ALL WIRE STRANDS FAILED IN TENSION.

GENERAL DYNAMICS  
CONVAIR DIVISION

13 JUN 1964

DIFFICULTIES REVIEW-ELECTRICAL SYSTEM-GSE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI DIF OTH	VENDOR NAME VENDOR PART NO
<b>000000</b>						

CORRECTIVE ACTION-NO MEANINGFUL CORRECTIVE ACTION POSSIBLE SINCE EXACT CAUSE OF FAILURE NOT ESTABLISHED. TENSILE FAILURE COULD HAVE BEEN CAUSED BY EXCESSIVE FLEXING DURING HANDLING OR IMPROPER INITIAL ASSEMBLY DURING WIRE-TO-CONNECTOR SOLDERING. DAMAGE INCURRED DURING DEPOTTING PRECLUDED ASSIGNING DEFINITE PRIMARY CAUSE OF FAILURE.

ELECTRICAL-GSE POWER DISTRIBUTION	FAR-CI-98-40-040-p UMBILICAL CONNECTOR, LOCK ASSEMBLY	FAR UMBILICAL CONNECTOR, LOCK ASSEMBLY	1260 631007	3EA/ETR YES	NO	317-6137-004
<b>000000</b>						

FAILURE MODE-STRUCTURAL: THE GBT-4 LOCK ASSEMBLY WHICH LOCKS THE UMBILICAL PLUG TO THE UMBILICAL RECEPTACLE ON THE MISSILE ALSO HOUSES THE ELECTRICAL AND MECHANICAL RELEASE MECHANISM WAS REPORTED SLUGGISH DURING REPEATED ACTUATIONS. THE ASSY WAS DISASSEMBLED AT THE SITE AND REVEALED BRINELLING OF THE CENTRAL SHAFT, A BENT SPRING AND METAL CHIPS.

CORRECTIVE ACTION-RECOMMENDED FIELD SHOULD NOT TAMPER WITH A PART TO BE FAILURE ANALYZED. TO REDUCE BRINELLING OF THE SHAFT, A HARDER BASE MATERIAL THAN TYPE 303 STAINLESS STEEL SHOULD BE USED. FAILURE COULD NOT BE CONFIRMED.

ELECTRICAL-GSE POWER DISTRIBUTION	FAR-CI-98-40-035P UMBILICAL CONNECTOR	FAR UMBILICAL CONNECTOR	1260 31-632213-3	3EA/ETR YES	NO	
<b>000000</b>						

FAILURE MODE-CONTAMINATION: THE UMBILICAL PLUG, WHICH IS PART OF THE CABLE ASSEMBLY FROM RECEPTACLE BOX 2 TO QUADRA UNIT 3 OF THE THRUST CHAMBER, WAS SATURATED WITH WATER AND SEVERELY CORRODED. FAILURE WAS CONFIRMED AND RESULTED FROM INCOMPLETE POTTING OF THE TERMINALS AND INTERNAL AREAS OF THE CONNECTOR CAUSING ENVIRONMENTAL CORROSION.

CORRECTIVE ACTION-GSC RECOMMENDED THAT THE CONNECTORS BE SEALED IN MOISTURE-RESISTANT BAGS WITH A DESICCANT OR AN DRY-NITROGEN PURGED WHEN NOT IN USE.

ELECTRICAL-GSE POWER DISTRIBUTION	P3-400-02-197 CIRCUITRY	COMPOSITE-8 FACT CIRCUITRY	1070 630016	13/ETR YES	NO	
<b>000000</b>						

FAILURE MODE-OPEN (ELECTRICAL): THE LCB CIRCUITRY DISCONNECTION WAS INADVERTENTLY OVERLOADED DURING FACT PREPARATION NS.

SYSTEM EFFECT-MONO.

VEHICLE EFFECT-MONO.

CORRECTIVE ACTION-THE CONDITION WAS CORRECTED.

GENERAL DYNAMICS  
CONVAIR DIVISION

15 JUN 1968

DIFFICULTIES REVIEW-ELECTRICAL SYSTEM-GSE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
ELECTRICAL-GSE POWER DISTRIBUTION	FAR-CT-9B-40-025-P UMBILICAL CONNECTOR	FAR 55-01623-1	630806	30AFETR	YES CANNON NO 39787-0000	690099

FAILURE MODE-FAIL DURING OPERATION. THE UMBILICAL ADAPTER, WHICH IS THE LANDLINE CONNECTION TO THE FIRST STAGE UMBILICAL CABLE, FAILED BECAUSE THE INSULATION RESISTANCE FROM THE PINS TO THE CASE GROUND WAS BELOW 150G MEGOMS MINIMUM AS A RESULT OF INCOMPLETE POTTING FORMING MOISTURE LEAK PATHS.

CORRECTIVE ACTION-GSE RECOMMENDED THAT PERSONNEL CHECK ADAPTERS AT THE SITE FOR CONFORMANCE TO INSULATION RESISTANCE REQUIREMENTS. MARGINAL ADAPTERS BE X-RAYED TO CHECK CONDITION OF POTTING. REJECT ADAPTERS WITH VOIDS IN POTTING OR VACUUM DRY THE ADAPTER BEFORE USING AND CHANGE SPEC TO REQUIRE SLEEVING OF INDIVIDUAL BOLDED CONNECTIONS AND X-RAY EXAMINATION.

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
ELECTRICAL-GSE POWER DISTRIBUTION	A-JA-40-3184-F UMBILICAL LOCK ASSEMBLY	FAR	630703	13/ETR	YES CANNON NO 31T-0410-000	690098

FAILURE MODE-STRUCTURAL. ASSEMBLY FAILED WHEN THEIR LOCKING BALLS AND LOCK SHAFTS WERE SCORED AND NICKED. DAMAGE TO THE LOCKING BALLS AND LOCK SHAFT RESULTED FROM STRESS CONCENTRATION DUE TO THE SMALL BEARING AREA OF THE BALLS ON THE SHAFT.

CORRECTIVE ACTION-ECP 7142-R1-D SERIES UMBILICAL LOCK CHANGES WERE RELEASED APRIL 13, 1968. THIS ECP CHANGES THE D ALL-TYPE LOCK ASSEMBLY TO A TANG LOCK ASSEMBLY.

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
ELECTRICAL-GSE POWER DISTRIBUTION	SP-99-14-169-F UMBILICAL CONNECTOR	FAR T-36391-1	263-D	FACTORY	YES CANNON NO 17080-344	690090

FAILURE MODE-ERRATIC OPERATION DUE TO INTERMITTENT OPEN OF PINS 17 AND 39 RESULTED FROM AN EXCESSIVE AMOUNT OF PERMATEX BEING APPLIED BETWEEN THE FACE PLATES AND SQUEEZING ONTO THE PINS.

CORRECTIVE ACTION-VENDOR REQUESTED TO REDUCE AMOUNT OF PERMATEX TO MINIMUM REQUIRED TO SEAL CONNECTOR.

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
ELECTRICAL-GSE POWER DISTRIBUTION	P2-4CO-03-179	COMPOSITE-F ACT	170	12/ETR	YES NO	620828

FAILURE MODE-ERRATIC OPERATION. THE MISSILE DC POWER FLUCTUATED AS MUCH AS 0.3 VOL. CAUSE UNKNOWN.

SYSTEM EFFECT-ERRATIC OPERATION.

VEHICLE EFFECT-COUNTDOWN DELAYED. 50 MINUTES HOLD.

CORRECTIVE ACTION-UNKNOWN. THE FLUCTUATIONS DECREASED DURING THE HOLD AND THE COUNTDOWN WAS RESUMED.

13 JUN 1968

GENERAL DYNAMICS  
CONVAIR DIVISION

## DIFFICULTIES REVIEW-ELECTRICAL SYSTEM-CSE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
ELECTRICAL-CSE POWER DISTRIBUTION	P2-4CO-02-179 UMBILICAL EJECTION CIRCUITRY	COMPOSITE-B FACT 020603	179D 0	18/E/TA NO	YES NO	600070
	FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. UMBILICAL P4001 DID NOT EJECT ELECTRICALLY BECAUSE OF IMPROPER WIRING OF EJECTION CIRCUITRY.					
	SYSTEM EFFECT-NONE.					
	VEHICLE EFFECT-NONE. THE UMBILICAL WAS MANUALLY PULLED.					
	CORRECTIVE ACTION-THE UMBILICAL WAS REPLACED.					
ELECTRICAL-CSE POWER DISTRIBUTION	P2-4CO-01-179 UMBILICAL EJECTION CIRCUITRY	COMPOSITE-B FACT 020602	179D 0	18/E/TA NO	YES NO	600070
	FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. UMBILICAL P4001 DID NOT EJECT ELECTRICALLY BECAUSE OF IMPROPER WIRING OF EJECTION CIRCUITRY.					
	SYSTEM EFFECT-NONE.					
	VEHICLE EFFECT-NONE. THE UMBILICAL WAS MANUALLY PULLED.					
	CORRECTIVE ACTION-THE UMBILICAL WAS TO BE REPLACED.					
ELECTRICAL-CSE POWER DISTRIBUTION	P2-4CO-01-179 UMBILICAL CONNECTOR	COMPOSITE-B FACT 020602	179D 0	18/E/TA NO	YES NO	600070
	FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. UMBILICAL P1003 DID NOT EJECT ELECTRICALLY BECAUSE OF MECHANICAL ENGINEERING.					
	SYSTEM EFFECT-NONE.					
	VEHICLE EFFECT-NONE. THE UMBILICAL WAS MANUALLY PULLED.					
	CORRECTIVE ACTION-UNKNOWN.					
ELECTRICAL-CSE POWER DISTRIBUTION	P2-4CO-04-145 UMBILICAL	COMPOSITE-B FACT 020713	145D 0	18/E/TA NO	YES NO	600070
	FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. UMBILICAL P4001 DID NOT EJECT ELECTRICALLY. THE CAUSE IS UNKNOWN.					
	SYSTEM EFFECT-NONE.					
	VEHICLE EFFECT-NONE.					

15 JUN 1966

GENERAL DYNAMICS  
CONVAIR DIVISION

## DIFFICULTIES REVIEW-ELECTRICAL SYSTEM-6SE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI	VENDOR NAME VENDOR PART NO
<b>CORRECTIVE ACTION-THE UMBILICAL WAS MANUALLY REMOVED.</b>						
ELECTRICAL-GSE POWER DISTRIBUTION	P2-4CO-03-145 UMBILICAL	COMPOSITE-J FACT 620706	1450 620706	12/ETR -	YES NO	609961 609963
<b>FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. UMBILICAL P4001 DID NOT EJECT ELECTRICALLY. THE CAUSE IS UNKNOWN.</b>						
SYSTEM EFFECT-NONE.						
VEHICLE EFFECT-NONE.						
<b>CORRECTIVE ACTION-THE UMBILICAL WAS MANUALLY REMOVED.</b>						
ELECTRICAL-GSE POWER DISTRIBUTION	P2-4CO-02-145 UMBILICAL	COMPOSITE-B FACT 620702	1450 620702	12/ETR 0	YES NO	609964
<b>FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. UMBILICALS P1002, P1003, P1007, P4001 DID NOT EJECT ELECTRICALLY. THE CAUSE IS UNKNOWN.</b>						
SYSTEM EFFECT-NONE.						
VEHICLE EFFECT-NONE.						
<b>CORRECTIVE ACTION-THE UMBILICALS WERE MANUALLY REMOVED.</b>						
ELECTRICAL-GSE POWER DISTRIBUTION	SP-9B-40-3056C UMBILICAL CONNECTOR	FAR 7-199713-3	1450 620628	12/ETR 0	YES CANNON NO PI003	609932
<b>FAILURE MODE-OUT OF TOLERANCE. THE UMBILICAL CABLE REPORTEDLY FAILED TO EJECT MANUALLY AT 20 POUNDS PULL AS REQUIRED. THE FAILURE ANALYSIS WAS CANCELLED BECAUSE IT WAS DISCOVERED THAT IT WAS NOT THE UMBILICAL CABLE THAT HAD FAILED BUT THE MISSILEBORNE RECEPTACLE TO WHICH THIS UMBILICAL MATED.</b>						
SYSTEM EFFECT-NONE.						
VEHICLE EFFECT-NONE.						
<b>CORRECTIVE ACTION-UNK NOWN.</b>						
ELECTRICAL-GSE POWER DISTRIBUTION	SP-9B-40-3057C UMBILICAL CONNECTOR	FAR 7-066231	1450 620628	12/ETR -	NO CANNON NO PI003	
<b>FAILURE MODE-OUT OF TOLERANCE. THE UMBILICAL CABLE REPORTEDLY FAILED TO EJECT MANUALLY AT 20 POUNDS PULL AS REQUIRED. THE FAILURE ANALYSIS WAS CANCELLED BECAUSE IT WAS DISCOVERED THAT IT WAS NOT THE UMBILICAL THAT HAD FAILED BUT THE MISSILEBORNE RECEPTACLE TO WHICH THIS UMBILICAL MATED.</b>						

18 JUN 1984

GENERAL DYNAMICS  
CONVAIR DIVISION

## DIFFICULTIES REVIEW-ELECTRICAL SYSTEM-6AE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF TIME	SITE DIF TIME	PRI	VENDOR NAME	VENDOR PART NO
CORRECTIVE ACTION-UNKNOWN.							
ELECTRICAL-6AE POWER DISTRIBUTION	SP-9B-4D-3026-F UMBILICAL CONNECTOR	FAR 87-08118-3	1430 620827	12/ETR NO	YES CANNON PI005	698718	698633
FAILURE MODE-OUT OF TOLERANCE. THE UMBILICAL CABLE PLUG WAS LOOSE AFTER BEING MATED TO THE MISSILE. THE PLUGS LOCKING PROTRUSION WAS TOO SMALL TO ALLOW THE LOCKING BALLS TO ENGAGE IN THE SLOP IN THE RECEPTACLE AND AT THE SAME TIME COMPRESS THE FACEPLATE SPRINGS.							
CORRECTIVE ACTION-6AE ETR PERSONNEL WERE ASKED TO CHECK THE ADJUSTMENT OF ALL D SERIES UMBILICALS FAILING IN A SIMILAR MANNER PER PROCEDURE 2T-93430-0KIE BEFORE SUBMITTING THEM FOR FAILURE ANALYSIS.							
ELECTRICAL-6AE POWER DISTRIBUTION	AEG-0857 MICRO SWITCH	COUNTDOWN 620821	210 NO	8-3	YES NO	698638	698638
FAILURE MODE-PREMATURE OPERATION. PREMATURE UMBILICAL EJECTION RESULTED FROM A FAULTY 2 INCH MOTION MICROSWITCH. SYSTEM EFFECT-OPERATION STOPS PREMATURELY. VEHICLE EFFECT-LAUNCH COUNTDOWN ABORTED.							
CORRECTIVE ACTION-2 INCH MOTION MICROSWITCH REPLACED.							
ELECTRICAL-6AE POWER DISTRIBUTION	PR-CO-01-145 UMBILICAL	COMPOSITE-B-FACT 317-0416-00	1430 0	12/ETR NO	YES NO	698618	698618
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. UMBILICAL PI003, PI007, PA001 DID NOT EJECT ELECTRICALLY. THE CAU SE IS UNKNOWN.							
SYSTEM EFFECT-NONE. VEHICLE EFFECT-NONE.							
CORRECTIVE ACTION-THE UMBILICALS WERE MANUALLY REMOVED.							
ELECTRICAL-6AE POWER DISTRIBUTION	AAG2-0037/PZ-403-00-133 UMBILICAL CONNECTOR	COUNTDOWN 620423	1330 -3600	12/ETR NO	YES NO	698614	698614
FAILURE MODE-PREMATURE OPERATION. UMBILICAL PI005 WAS INADVERTENTLY EJECTED. UMBILICAL PI007 WAS FOUND LOOSE. SYSTEM EFFECT-IMPROPER DISCRETE SIGNALS. DIFFERENTIAL PRESSURE WARNING LIGHT AND BUZZER CAME ON. THE PCU SET UP AT A GE 2 EMERGENCY PRESSURES.							
VEHICLE EFFECT-COUNTDOWN DELAYED. THERE WAS A HOLD OF WHICH 10 MIN COULD BE ATTRIBUTED TO THIS PROBLEM.							

15 JUN 1966

GENERAL DYNAMICS  
CONAIR DIVISION

## DIFFICULTIES REVIEW-ELECTRICAL SYSTEM-CSE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE GATE DIF	SITE TIME DIF	FRI OIN	VENDOR NAME VENDOR PART NO
<b>000002</b>						

CORRECTIVE ACTION-UMBILICAL PLUG PIGS WAS REINSTALLED.

ELECTRICAL-GSE POWER DISTRIBUTION	AG-98-18-047F UMBILICAL CONNECTOR	FAR 87-06117-001	1930 020463	12/EIR NO	YES CANNON ELEC.	000003
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FAILURE MODE-STRUCTURAL. POST LAUNCH INSPECTION OF UMBILICAL CONNECTOR REVEALED THAT A NUMBER OF ELECTRICAL CONTACT PINS EXTENDED THROUGH THE FACEPLATE INDICATING A POSSIBLE ABNORMAL EJECTION. BECAUSE OF EXTENSIVE FIRE DAMAGE, ABNORMAL EJECTION WAS NOT CONFIRMED.

CORRECTIVE ACTION-NONE.

ELECTRICAL-GSE POWER DISTRIBUTION	AA62-3067/F4-403-00-104 UMBILICAL	COUNTDOWN	1040 020421	SEA/EIR NO	YES	000041
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FAILURE MODE-OUT OF TOLERANCE. AN AUTOMATIC CUTOFF WAS GENERATED AT THE TCC BY THE FUNCTION-SAFE INCOMPLETE CUTOFF TIMER. THE TIMER WAS ACTUATED WHEN THE LOWER PLATE DISCONNECT SIGNAL FAILED TO COMPLETE THE TCC FUNCTION-SAFE LADDER DUE TO THE FIRING VALVE ELECTRICAL PLUG FOR TWO-INCH MOTION AND THE FIRING VALVE PLUS FOR LOWER PLATE DISCONNECT. FIRING REVERSED.

SYSTEM EFFECT-OPERATION DOES NOT START. REVERSAL OF THE TWO-INCH MOTION AND LOWER PLATE DISCONNECT FIRING VALVE PLUS PREVENTED LOWER PLATE EJECTION, CAUSED PREMATURE EJECTION OF THE CENTAUR LH2 AND LH2 FILL AND DRAIN VALVES AND UMBILICAL PLUGS PA02, JS AND JA1.

VEHICLE EFFECT-COUNTDOWN ABORTED AND RESCHEDULED. THE LAUNCH ATTEMPT WAS ABORTED BY AUTOMATIC CUTOFF.

CORRECTIVE ACTION-VALVE RECEPTACLES AND MATING PLUGS WERE TAGGED WITH PROPER PART NUMBERS. ALL CABLES WERE SHORTENED TO LENGTH PERMITTING CONNECTION TO THEIR MATING RECEPTACLE. ALL CABLES CLAMPED TO THEIR CORRESPONDING SOLENOID VALVE WITHIN 6 INCHES OF MATING PLUG. DESCRIPTIVE NAME OF EACH SOLENOID VALVE PAINTED ABOVE EACH VALVE.

ELECTRICAL-GSE POWER DISTRIBUTION	AA62-0031/A-98-10-176 UMBILICAL CONNECTOR	COMPOSITE-J FACT	40E 880203	13/EIR NO	YES	000005
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FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. UMBILICAL 60004 FAILED TO EJECT ELECTRICALLY. FAILURE CAUSED BY CORROSION IN THE EJECT SOLENOID.

SYSTEM EFFECT-NONE. ELECTRICAL SYSTEM HAD GONE TO INTERNAL POWER.

VEHICLE EFFECT-NONE.

CORRECTIVE ACTION-UMBILICAL ADAPTER WRITTEN UP ON 18/06/66 AND REPLACED BY NEW UNIT. REPLACEMENT FAILED IN SAME MANNER. IN 61716 WRITTEN. THIRD UNIT SATISFACTORY.

18 JUN 1986

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CONVAIR DIVISION

## DIFFICULTIES REVIEW-ELECTRICAL SYSTEM-GSE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
ELECTRICAL-GSE POWER DISTRIBUTION	A-98-40-196F UMBILICAL CONNECTOR	FAR 87-08172-638	620205 620126	13/ETR 090030	YES	GRAY-HULEGUARD NO
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. ADAPTER FAILED TO EJECT UPON ELECTRICAL ACTUATION. DISASSEMBLY REVEALED CORROSION ON THE CLUTCH SHAFT AND ON ITS HOUSING WITHIN THE SOLENOID. FAILURE OF THE ADAPTER WAS DUE TO CORROSION CAUSED BY MOISTURE WHICH SEEPED INTO THE SOLENOID.						
CORRECTIVE ACTION-NONE.						
ELECTRICAL-GSE POWER DISTRIBUTION	A-98-00009/P2-401-00-181 UMBILICAL CONNECTOR	COUNTDOWN	1210 620126	12	YES NO	090377
FAILURE MODE-ERRATIC OPERATION. THE B1 FUEL VALVE CLOSED PANEL LIGHT GAVE INTENITANT INDICATIONS. CAUSED BY AN INTEMITANT CONNECTION IN UMBILICAL PLUG P1007.						
SYSTEM EFFECT-IMPROPER DISCRETE SIGNAL.						
VEHICLE EFFECT-NONE. ACCEPTABLE FOR LAUNCH.						
CORRECTIVE ACTION-UNKNOWN.						
ELECTRICAL-GSE POWER DISTRIBUTION	A-98-40-189-F UMBILICAL CONNECTOR PIN, POWER	FAR 87-08171-801	1210 620103	12/ETR 090103	YES PACIFIC AUTOMA TION PRODUCTS NO	090103
FAILURE MODE-FAIL DURING OPERATION. THE ENGINE MANIFOLD PRESSURE SWITCH MALFUNCTIONED. THE REPLACEMENT SWITCH WAS FUNCTIONED ALSO. FURTHER CHECKS REVEALED THAT PIN 27 OF PLUG P1007 OF THE UMBILICAL CABLE WAS SHORTED TO ELECTRICAL GROUND. THE FAILURE WAS DUE TO THE WIRE SOLDERED AT PIN 27 BEING PINCHED AND DAMAGED IN THE ASSEMBLY OF THE PLUG. SINCE THIS TYPE OF PLUG HAD BEEN Reworked BY ED/C PERSONNEL AND BY VENDOR PERSONNEL, IT WAS NOT POSSIBLE TO IDENTIFY THE SOURCE OF THE REWORK DAMAGE.						
CORRECTIVE ACTION-NONE.						
ELECTRICAL-GSE POWER DISTRIBUTION	A-981-0799 UMBILICAL GROUP	FLIGHT	4F 01182	11 0	YES NO	090205
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. UMBILICAL GROUP FAILED TO EJECT ELECTRICALLY OR BY THE LANHARD.						
SYSTEM EFFECT-NONE.						
VEHICLE EFFECT-NONE. FAILURE OF THE UMBILICAL TO EJECT CAUSED DEFORMATION OF THE ARNA P00 AFT BULHEAD. HOWEVER NO 1 NFIGHT SYSTEM PROBLEMS OCCURRED AS A RESULT.						

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GENERAL DYNAMICS  
CONVAIR DIVISION

DIFFICULTIES REVIEW-ELECTRICAL SYSTEM-GSE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PAL DIF OTH	VENDOR NAME VENDOR PART NO	
CORRECTIVE ACTION-NONE.							600473
ELECTRICAL-GSE POWER DISTRIBUTION	AAS-0153/P2-4CG-01-17 UMBILICAL CONNECTOR	COMPOSITE-FDO/DPL 611004	1170 610927	15/E/ETR YES NO			600660
FAILURE MODE-FAILED TO OPERATE AT PRESCRIBED TIME. UMBILICAL PADS1P AND P1007P FAILED TO EJECT ELECTRICALLY.							
SYSTEM EFFECT-NONE.							
VEHICLE EFFECT-NONE.							
CORRECTIVE ACTION-UNKNOWN.							
ELECTRICAL-GSE POWER DISTRIBUTION	AAS1-0147/P2-5CO-01-30 UMBILICAL CONNECTOR SOLENOID	COMPOSITE-J FACT 27-06172-629	30E 610927	13	YES NO		600658
FAILURE MODE-CONTAMINATION. DURING FAC TEST UMBILICAL SOLENOID FAILED TO EJECT ELECTRICALLY. INVESTIGATION SHOWED CONTAMINATION ON THE SOLENOID RETAINING COLLET.							
SYSTEM EFFECT-NONE.							
VEHICLE EFFECT-NONE.							
CORRECTIVE ACTION-TR6533446 WAS WRITTEN AND THE UNIT REPLACED.							
ELECTRICAL-GSE POWER DISTRIBUTION	AAS1-0147/P2-04-266 UMBILICAL CONNECTOR PINS	COMPOSITE-J FACT 27-06172-629	30E 610927	15/E/ETR YES NO			600622
FAILURE MODE-ELECTRICAL SHORT. TWO PINS IN UMBILICAL ADAPTER 600446 WERE FOUND TO BE SHORTED DURING THE FAC TEST.							
SYSTEM EFFECT-OPERATION TOO LOW. DC VOLTAGE TO S1 SOLID PROPELLANT GAS GENERATOR HEATER WAS BELOW REQUIREMENTS.							
VEHICLE EFFECT-NONE.							
CORRECTIVE ACTION-TR 6533449 WRITTEN. UMBILICAL ADAPTER REPLACED.							
ELECTRICAL-GSE POWER DISTRIBUTION	AES1-0795/LI-AU1-00-106 UMBILICAL P1003	FLIGHT 610909	1000 0.265	1-1 NO			
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. DUE TO FAILURE OF P1003 TO EJECT ELECTRICALLY THE UMBILICAL ALLOWED ELECTRICAL POWER TO SWITCH BACK TO GROUND POWER. NORMALLY P1003 SHOULD EJECT WITH P1003 (PROPULSION UMBILICAL). WHEN P1003 EJECTED THE LAUNCH CONTROL LOGIC WAS SUCH THAT A COMMIT STOP WAS GENERATED WHICH IN TURN GENERATED AN ELECTRICAL SIGNAL TO THE VEHICLE TO SWITCH BACK TO GROUND POWER. SINCE P1003 WAS STILL ENGAGED THE SIGNAL WAS ACTED UPON BY THE POWER CHANGE-OVER SWITCH.							
SYSTEM EFFECT-OPERATION STOP PREMATURELY.							

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GENERAL DYNAMICS  
CONVAIR DIVISION

DIFFICULTIES REVIEW-ELECTRICAL SYSTEM-GSE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
						699474

VEHICLE EFFECT-PREMATURE PROPULSION SHUTDOWN. THE VEHICLE FELL BACK ON TO THE PAD AND EXPLODED.

CORRECTIVE ACTION-1. COMMIT SEQUENCE LOCK-UP IN LOGIC AFTER RELEASE VEHICLE SIGNAL 2. PREVENT COMMIT STOP GENERATION IN LOGIC UNTIL MISSILE AWAY IS RECEIVED (OR AUTOMATIC STOP). 3. PREVENT MISSILE AWAY UNTIL ALL UMBILICALS HAVE BEEN EJECTED. 4. PROCEDURAL CHANGE TO UMBILICAL INSTALLATION.

ELECTRICAL-GSE POWER DISTRIBUTION	9B-40-10AF UMBILICAL CONNECTOR	FAR 27-06172-635	28E 610624	13/ETR NO	YES GRAY-HULLEGUARD	699640
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FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. THE ADAPTER FAILED TO EJECT UPON ELECTRICAL ACTUATION. FAILURE WAS THE RESULT OF THE FINGERS FAILING TO RETRACT FROM THE COLLET. THE FINGERS WOULD NOT RETRACT DUE TO SMALL BURRS ON THE COLLET. THESE BURRS WERE SUFFICIENT TO OVERCOME THE FORCES TENDING TO RETRACT THE FINGERS.

CORRECTIVE ACTION-NONE. HOWEVER, RELIABILITY RECOMMENDED REDESIGN OF THE SOLENOID EJECTOR MECHANISM.

ELECTRICAL-GSE POWER DISTRIBUTION	AAB1-0124/9B-40-10Y UMBILICAL CONNECTOR	COMPOSITE-J FACT 27-06172-629	28E 610621	13/ETR NO	YES GRAY-HULLEGUARD	699646
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FAILURE MODE-FAILED TO OPERATE AT PRESCRIBED TIME. UMBILICAL 60003 FAILED TO EJECT ELECTRICALLY.

SYSTEM EFFECT-NONE.

VEHICLE EFFECT-NONE.

CORRECTIVE ACTION-1R WRITTEN ON THIS AND SIX ADDITIONAL UMBILICALS AS RESULT OF POST-TEST INVESTIGATION.

ELECTRICAL-GSE POWER DISTRIBUTION	9B-40-10AF UMBILICAL CONNECTOR	FAR 27-06172-633	28E 610611	13/ETR NO	YES GRAY-HULLEGUARD	699641
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FAILURE MODE-FAILED TO OPERATE AT PRESCRIBED TIME. THE ADAPTER FAILED TO EJECT UPON ELECTRICAL ACTUATION. THE FAILURE WAS THE RESULT OF THE FINGERS FAILING TO RETRACT FROM THE COLLET. THE FINGERS WOULD NOT RETRACT DUE TO SMALL BURRS ON THE COLLET. THESE BURRS WERE SUFFICIENT TO OVERCOME THE FORCES TENDING TO RETRACT THE FINGERS.

CORRECTIVE ACTION-NONE. HOWEVER, RELIABILITY RECOMMENDED REDESIGN OF THE SOLENOID EJECTOR MECHANISM.

ELECTRICAL-GSE POWER DISTRIBUTION	AAB1-0033/P2-401-00-111 UMBILICAL P1001	COUNTDOWN 010729	1110 -3840	13 NO	YES	699642
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FAILURE MODE-BAD ELECT. BI POOL COLLING DUCT CONDENSATION DRIPPED ON P1001 UMBILICAL PLUG CAUSING THL A/P Emitter FOLLOWER VOLTAGE TO BE GROUNDED OUT AT THE UMBILICAL.

15 JUN 1986

GENERAL DYNAMICS  
CONVAIR DIVISION  
DIFFICULTIES REVIEW-ELECTRICAL SYSTEM-GSE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	OIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTW	VENDOR NAME VENDOR PART NO
SYSTEM EFFECT-IMPROPER ANALOG SIGNALS. THE YAW GYRO NULL LIGHT CAME ON AND THE GYRO COULD NOT BE NULLED.						699371
VEHICLE EFFECT-COUNTDOWN DELAYED. 27 MINUTES OF HOLD TIME WERE REQUIRED TO DRY AND SEAL THE UMBILICAL PLUG.						
CORRECTIVE ACTION-THE UMBILICAL WAS DRIED WITH GNE. DC-T COMPOUND WAS APPLIED AROUND THE GASKET. RED TAPE WAS APPLIED OVER THE UMBILICAL AS A WATER SHIELD.						
ELECTRICAL-GSE POWER DISTRIBUTION	98-40-101 UMBILICAL CONNECTOR	FAR 27-06814-1	610519 13/ETR	13/ETR NO TION	YES PACIFIC AUTOMA	699708
FAILURE MODE-FAILED DURING OPERATION. CAUSE OF FAILURE WAS A COLD SOLDER JOINT ON PIN V OF PLUG 600UZPS.						
CORRECTIVE ACTION-RELIABILITY SUGGESTS THAT QUALITY ASSURANCE TAKE IMMEDIATE STEPS TO IMPROVE THE QUALITY OF THESE ITEMS.						
ELECTRICAL-GSE POWER DISTRIBUTION	A461-0062/P3-5CO-01-10 UMBILICAL ADAPTER	COMPOSITE-D FACT 610511	16E 13/ETR	YES NO	YES PACIFIC AUTOMA	699986
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. UMBILICAL ADAPTERS 600UZ AND 600UT FOUND TO BE DEFECTIVE DURING TEST. 600UZ WAS FOUND TO HAVE COLD SOLDER POINT AT 600UZ PS-1 WHICH PREVENTED SOLENOID EJECTION.						
SYSTEM EFFECT-NONE.						
VEHICLE EFFECT-COUNTDOWN DELAYED. HOLD TIME UNKNOWN.						
CORRECTIVE ACTION-THE UMBILICAL ADAPTERS WERE REPLACED.						
ELECTRICAL-GSE POWER DISTRIBUTION	98-40-001 UMBILICAL CONNECTOR	FAR 27-06178-631	16E 610.11	13/ETR NO	YES GREY-HUAGUARD	699856
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. THE ADAPTER DID NOT EJECT WHEN THE SOLENOID WAS ENERGIZED. THE FAILURE WAS NOT CONFIRMED. THE ADAPTER OPERATED NORMALLY DURING FAILURE ANALYSIS.						
CORRECTIVE ACTION-NONE.						
ELECTRICAL-GSE POWER DISTRIBUTION	108-40-004 UMBILICAL CONNECTOR	FAR 27-06172	16E 610811	13/ETR NO	YES GREY AND HULES NO UARD	
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. THE ADAPTER FAILED NORMALLY DURING FAILURE ANALYSIS. REFERENCE						

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GENERAL DYNAMICS  
COHAVIR DIVISION

## DIFFICULTIES REVIEW-ELECTRICAL SYSTEM-GSE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DEF DATA SOURCE PART NUMBER	VEHICLE DATE DIF TIME DIF OTM	SITE	PRI	VENDOR NAME VENDOR PART NO	COMMENT
CORRECTIVE ACTION-NONE.							
ELECTRICAL-GSE POWER DISTRIBUTION	9B-40-079 UMBILICAL CONNECTOR	FAR 27-06172	18E 610511	13/ETR	YES	GREY AND HULEU NO HARD	090640
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. THE ADAPTER DID NOT EJECT WHEN 24VDC WAS APPLIED TO THE SOLENOID. FAILURE WAS NOT CONFIRMED. THE ADAPTER ELECTRICAL EJECTION MECHANISM WORKED NORMALLY DURING FAILURE ANALYSIS.							
CORRECTIVE ACTION-NONE.							
ELECTRICAL-GSE POWER DISTRIBUTION	9B-40-DAT UMBILICAL CONNECTOR	FAR 27-06172	010200 001209	13/ETR	YES	GREY AND HULEU NO ARO	090640
FAILURE MODE-STRUCTURAL. THE GEAR TEETH WERE CHIPPED BECAUSE SPUR GEARS WHERE USED WHEN BEVEL GEARS WERE REQUIRED. THE CONNECTOR FAILED TO MATE WITH THE MISSILE RECEPTACLE BECAUSE OF INADEQUATE GEAR DRIVE.							
CORRECTIVE ACTION-THE BACKS OF THE HS CONNECTORS ON THE UMBILICAL CONNECTORS ARE BEING POTTED TO EXCLUDE MOISTURE. THE DRIVE MECHANISM IS BEING REDESIGNED TO PREVENT GEAR TOOTH BREAKAGE AND MECHANICAL BINDING.							
ELECTRICAL-GSE POWER DISTRIBUTION	D4202/L1-4HO-01-70 DC POWER SUPPLY	COMPOSITE-FBD/DPL TOD	1-1 001209				090337
FAILURE MODE-OUT OF EXPECTED TEST VALUE. INTERNAL TIMER RAN OUT BEFORE TRANSFER TO INTERNAL POWER DUE TO VOLTAGE BE LOW MINIMUM OF 25.0 VOLTS D.C.							
SYSTEM EFFECT-UNKNOWN.							
VEHICLE EFFECT-UNKNOWN.							
CORRECTIVE ACTION-TIMER DURATION INCREASED TO 2.0 SECONDS TO SAMPLE VOLTAGE DURING COMMUTATION SEQUENCE.							
ELECTRICAL-GSE POWER DISTRIBUTION	AABD-0100/PZ-4CO-01-91 ELECTRICAL CABLE	COMPOSITE-B FACT SOLES	13/ETR 0	YES NO			
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. NO UMBILICALS EJECTED ELECTRICALLY AT T=0. THE PROBLEM WAS TRACED TO THE 2 AND 3 INCH RISE CABLE NOT BEING PLUGGED INTO THE JAS BOX.							
SYSTEM EFFECT-OPERATION DOES NOT START. ELECTRICALLY EJECTED UMBILICALS DID NOT EJECT AT T=0.							
VEHICLE EFFECT-NONE.							

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GENERAL DYNAMICS  
CONVAIR DIVISION

## DIFFICULTIES REVIEW-ELECTRICAL SYSTEM-GSE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIV DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI C	VENDOR NAME VENDOR PART NO
<b>CORRECTIVE ACTION-THE WIRING WAS CONNECTED.</b>						
ELECTRICAL-GSE POWER DISTRIBUTION	FTAGS577/P1-405-00-42	COUNTDOWN 600308	42D -60	1A -60	NO YES	600004
<b>FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. PNEUMATICS COULD NOT GO INTERNAL DUE TO FAILURE OF THE INTERNAL PNEUMATIC CIRCUITRY.</b>						
<b>SYSTEM EFFECT-OPERATION DOES NOT START. INTERNAL PNEUMATICS COULD NOT BE OBTAINED DUE TO THE FAILURE OF THE INTERNAL PNEUMATIC CIRCUITRY.</b>						
ELECTRICAL-GSE POWER DISTRIBUTION	FTAGS566/P3-4C0-01-49	COMPOSITE-B FACT UMBILICAL PLUG	49D 600803	13/ETR -6	YES NO	600007
<b>FAILURE MODE-OUT OF TOLERANCE. UMBILICAL PLUG WAS LOOSE WHICH CAUSED AN INTERMITTENT AUTOPILOT READY LIGHT ON THE TCC CONSOLE.</b>						
<b>SYSTEM EFFECT-ERRATIC OPERATION. THE AUTOPILOT READY LIGHT ON THE TCC CONSOLE WAS INTERMITTENT.</b>						
<b>VEHICLE EFFECT-NONE.</b>						
<b>CORRECTIVE ACTION-NONE.</b>						
ELECTRICAL-GSE POWER DISTRIBUTION	FTAGS131/P3-402-00-17	COMPOSITE-B FACT CONTROL BOX	150 501112	ETR -	YES NO	600008
<b>FAILURE MODE-ERRATIC OPERATION. ALL UMBILICALS DID NOT EJECT DUE TO A DEFECTIVE CONTROL SCN.</b>						
<b>SYSTEM EFFECT-NONE.</b>						
<b>VEHICLE EFFECT-NONE.</b>						
<b>CORRECTIVE ACTION-UNKNOWN.</b>						
ELECTRICAL-GSE POWER DISTRIBUTION	FTAGS131/P3-402-00-17	COUNTDOWN 600809	17D -420	13/ETR -	YES NO	600009
<b>FAILURE MODE-PREMATURER OPERATION. A LOOSE UMBILICAL PLUG CAUSED AN OPEN CIRCUIT IN THE BOOSTER NO. 1 IGNITION DETECTION CIRCUIT.</b>						
<b>SYSTEM EFFECT-NONE.</b>						

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GENERAL Dynamics  
CONVAIR DIVISION

## DIFFICULTIES REVIEW-ELECTRICAL SYSTEM-GSE

SYSTEM SUB-SYSTEM	TEST REPORT NUMBER FAIL-ED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
VEHICLE EFFECT-COUNTDOWN DELAYED. HAD TIME WAS 18 MINUTES. BOOSTER NO. 1 IGNITION DETECTION LINKS PANEL LIGHTS EXT INQUIISHED.						600012
CORRECTIVE ACTION-THE UNBILICAL WAS TIGHTENED.						
ELECTRICAL-GSE POWER DISTRIBUTION	EM1330/P4-401-00-10 UNBILICAL CONNECTOR	FRF 590901	100 590901	14 -8400	YES NO	TEC ROCKETDYNE 600054
FAILURE MODE-PREATURE OPERATION. DURING FLIGHT READINESS FIRING COUNTDOWN THE MERCURY CAPSULE AUXILIARY UNBILICAL DISCONNECTED DUE TO THE WEIGHT OF THE RELEASE LANYARD.						
SYSTEM EFFECT-NONE. NO EFFECT WAS INDICATED.						
VEHICLE EFFECT-COUNTDOWN DELAY. THE DISCREPANCY CAUSED A 110 MINUTE DELAY IN COUNTDOWN WHILE THE DIFFICULTY WAS ISOLATED AND CORRECTED.						
CORRECTIVE ACTION-LANYARD SAFETY WIRED TO VEHICLE TO RELIEVE TENSION ON RELEASE MECHANISM.						
ELECTRICAL-GSE POWER DISTRIBUTION	FTA3013/PF-300-01-08 UNBILICAL CONNECTOR	COMPOSITE-B FACT 800707	EC 800707	14/ETR 0	YES NO	600076
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. UNBILICALS P4030 AND P4007 FAILED TO EJECT ELECTRICALLY BECAUSE OF MECHANICAL BINDING.						
SYSTEM EFFECT-NONE. UNBILICALS WERE MANUALLY PULLED.						
VEHICLE EFFECT-NONE.						
CORRECTIVE ACTION-UNKNOWN.						
ELECTRICAL-GSE POWER DISTRIBUTION	AZC-27-051/P3-402-00-05 WIRING	COUNTDOWN 50 500002	SD 13/ETR	YES NO		600012
FAILURE MODE-ERRATIC OPERATION. LC-1 VALVE POSITION LIGHTS DID NOT OPERATE PRIOR TO THE START OF TANKING. AFTER TANKING COMMENCED, THE LIGHTS OPERATED PROPERLY.						
SYSTEM EFFECT-NONE.						
CORRECTIVE ACTION-CHECKOUT FOUND THE MICROSWITCHES WERE TIED TO A FLUCTUATING D-C SOURCE. THE CONDITION WAS CORRECTED.						

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GENERAL DYNAMICS  
COMMERCIAL DIVISION

SIEGMUND VIER STYLISATIONSTECHNIKEN IN SYSTEM-E

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIFF	SITE TIME DIFF	PRIM OTH	VENDOR NAME VENDOR PART NO
ELECTRICAL-6SE POWER DISTRIBUTION	A7C-87-0100/P3-48N-01-03 UNBALANCED WIRING	COMPOSITE-B FACT	30	13/E7R	YES	990313 NO

VEHICLE EFFECT/COMPOSITE RESCHEDULED. THE TEST WAS UNSUCCESSFUL DUE TO THE BURNED OUT GYRO EXCITATION TRANSFORMER A  
SYSTEM EFFECT - NONE.

ELECTRICAL-GSE  
POWER & DISTRIBUTION  
MAIN MISSILE BATTERY PANEL METER  
COUNTDOWN  
FTA304-108-103-001-16

A NEW CALIBRATION FOR THE 1000-METER STATION

SYSTEM DIRECT-MODE.

WE WOULD EFFECTIVELY CAN DELAYED. RECYCLE TIME WAS 60 MINUTES. MOND TIME WAS 2 HOURS AND 15 MINUTES.

THE JOURNAL OF CLIMATE

FAILURE MODE-OUT OF TOLERANCE. THE MISSILE GROUND RECTIFIER WAS BELOW BATTERY OUTPUT. RECTIFIER OUTPUT WAS 18 VDC A  
 POWER DISTRIBUTION

	FTAZ209/PE-102-00-11	COUNTDOWN	I/A	ZTR	YES
MISSILE GROUND RECTIFIER		380213	-4800	NO	

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**CORRECTIVE ACTION-A REPLACEMENT RECIFILM WAS INSTALLED.**

ELECTRICAL-GSE	EC-7-037/PA-102-00-13	FLIGHT	13A 690207	14 0	YES NO
POWER DISTRIBUTION	UNBILICAL CONNECTOR				

FAILURE MODE-FAILED TO OPERATE AT PRESCRIBED TIME. UNILICAL PILOT DID NOT EJECT AND WAS PHYSICALLY TORN OFF AND RE-MAINTAINED WITH THE VEHICLE. AS A RESULT, WHEN PILOT EJECTED NORMALLY, THE VEHICLE TAILED PRESURIZED SIGNAL TO THE GSE W-

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GENERAL DYNAMICS  
CONVAIR DIVISION

DIFFICULTIES REVIEW-ELECTRICAL SYSTEM-GAE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VE:SON PART NO	600099
VEHICLE EFFECT-NONE.							
CORRECTIVE ACTION-JUNK NOWN.							
ELECTRICAL-GSE POWER DISTRIBUTION	PTA2319/P2-102-00-10	FRF 571187	1UA 12/27A	YES NO			600049
	FAILURE MODE-FAIL DURING OPERATION. UNBILICAL PLUG PAYOT BECAME DETACHED 3 SECONDS AFTER ENGINE START, RESULTING IN AN ABNORMAL SHUTDOWN, WHICH FURTHER CAUSED THE FUEL DUCT AT INLET TO NO. 2 THRUST CHAMBER PROPELLANT PUMP TO COLLAPSE AND BOTH THRUST CHAMBERS WERE DAMAGED.						
SYSTEM EFFECT-NONE.							
VEHICLE EFFECT-PREMATURE PROPULSION SHUTDOWN.							
CORRECTIVE ACTION-REPLACED BOOSTER ENGINES AND DUCTING.							
ELECTRICAL-GSE INTERSTAGE WIRING AND DIST UNBILICAL CONNECTOR DISTRIBUTION	FAR-CT-98-00-001 27-0617P-053	FAR 568-700-053	4600712 368/CTR	YES NO AND 568/GREY AND HULEG			600064
	FAILURE MODE-FAIL TO OPERATE AT FRESCRIBED TIME. THE UNBILICAL PLUG DID NOT EJECT ELECTRICALLY DURING CHECKOUT BUT EJECTED MANUALLY. DURING MISSILE MATING THE LANYARD WAS INADVERTENTLY PUSHED INTO THE PLUG CATCHING THE CABLE BEING IN THE BEVEL GEAR AND THE SOLENOID ACTUATING ARM PREVENTING ELECTRICAL EJECTION. IN ADDITION, HEAVY GAUGES WERE FOUND ON THE BOOT SHELL CAUSED BY IMPROPER LOCKWIRING.						
CORRECTIVE ACTION-RECOMMEND SITE BE INFORMED OF THE CAUSE OF FAILURE AND REQUEST THEY (A) MAKE SURE THE LANYARD IS FREE DURING MATING, (B) PERFORM A ROUGH DIMENSIONAL CHECK OF THE LANYARD DIMENSION BEFORE EJECTION TO ASSURE LANYARD IS FREE OF THE BEVEL GEAR; (C) REFRAIN FROM UNAUTHORIZED DISASSEMBLY OR ADJUSTMENTS. FURTHER RECOMMENDATION-VENDOR IMPROVE ASSEMBLY AND INSPECTION PROCEDURES.							
ELECTRICAL-GSE VEHICLE CONTROL DISTRIBUTOR TRANSDUCER, WIND ON AND MONITOR	CT-98-310-095 87-97930-001	FAR 8600924 860	YES BECKMAN-WHITE NO Y				
	FAILURE MODE-ELECTRICAL OPEN CIRCUIT OF THE TRANSDUCERS SENSOR ELEMENT FROM OVER CURRENT APPLICATION.						
CORRECTIVE ACTION-RECOMMEND THAT LAUNCH SITE PERSONNEL INVESTIGATE TROUBLE SHOOTING PROCEDURES. THESE TRANSDUCERS SHOULD NOT BE CHECKED WITH HIGH CURRENT, AXI, SCALE OF OMNIMETER.							

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GENERAL DYNAMICS  
CONVAIR DIVISION

DIFFICULTIES REVIEW-ELECTRICAL SYSTEM-69E

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	SIF DATA SOURCE PART NUMBER	VEHICLE DATE DFT	SITE DFT	PAL DFT	VENDOR NAME VENDOR PART NO
ELECTRICAL-GSE VEHICLE CONTROL DISTRIBUTOR CONTROL UNIT LOG ON AND MONITOR	CT-98-530-098 27-43021-3	FAR 960326	ETR	YES CALIF INSTRUME NO NT 27-43021-3	669524	
FAILURE MODE-ERRATIC OPERATION, DUE TO FOREIGN MATERIAL OBSTRUCTING RELAY CONTACTS OPERATION.						
CORRECTIVE ACTION-RECOMMEND ADVISING THE VENDOR OF THE FINDINGS OF THIS FAILURE AND REQUEST HIS COOPERATION IN THE ELIMINATION OF FOREIGN MATERIAL IN THE CONTACTS AREA.						
ELECTRICAL-GSE VEHICLE CONTROL DISTRIBUTOR POTENTIOMETER ON AND MONITOR	CT-98-530-094 98-F9176-300	FAR 960326	ETR/588	YES CTS NO RADNA5010A	669510	
FAILURE MODE-FRATIC OPERATION, OCCURRED AS SYSTEM CALIBRATION BECAME DIFFICULT DUE TO NORMAL WEAR OF THE VARIABLE RESISTOR.						
CORRECTIVE ACTION-RECOMMEND THE LO2 LEVEL CONTROL SYSTEM BE INVESTIGATED TO DETERMINE IF SMOOTHER OPERATING POTENTIAL METERS ARE REQUIRED FOR SYSTEM CALIBRATION.						
ELECTRICAL-GSE VEHICLE CONTROL DISTRIBUTOR TRANSDUCER PRESSURE ON AND MONITOR	CT-98-530-091 99-01222-111	FAR 960129	ETR	YES GIANINI NO	669524	
FAILURE MODE-FAILURE TO OPERATE AT PRESCRIBED TIME DUE TO OPEN CIRCUITED SENSING ELEMENT.						
CORRECTIVE ACTION-RECOMMEND THAT HANDLING PERSONNEL REVIEW OPERATING PROCEDURES TO PRECLUDE THE MISAPPLICATION OF POWER TO THE INCORRECT TERMINALS.						
ELECTRICAL-GSE VEHICLE CONTROL DISTRIBUTOR RELAY ON AND MONITOR	CT-98-490-018 97-37302-001	FAR 951213	ETR	YES LEACH NO 9643-35-6	669520	
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME, CAUSED BY LOOSE PARTS OBSTRUCTING RELAY CONTACTS CLOSURE.						
CORRECTIVE ACTION-RECOMMEND THAT THE VENDOR IMPROVE ARMATURE ARM LOCKING METHOD.						
PAGE 0034						

GENERAL DYNAMICS  
CONVAIR DIVISION

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DIFFICULTIES REV1-W-ELECTRICAL SYSTEM-GAC

SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PAL O/H	VENDOR NAME VENDOR PART NO
ELECTRICAL-GSE VEHICLE CONTROL DISTRIBUTOR TRANSDUCER, PRESSURE ON AND MONITOR	CT-93-530-069	FAN 60-01323-23	051109	ETR	YES	EDCLIFF NO
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CONVAIR DIVISION

DIFFICULTIES REVIEW-ELECTRICAL SYSTEM-GSE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE	SITE TIME	PRI DIF	VENDOR NAME PART NO
ELECTRICAL-GSE DC POWER GENERATION	FTAG374/P48-CO-04-DAC6 GTR BATTERY SIMULATOR	COMPOSITE-J FACT 650731	1510 -120	368/E7R NO	YES	6000176

FAILURE MODE-OUT OF TOLERANCE. THE ATLAS RF1 FILAMENT 7 VOLT SUPPLY VOLTAGE WENT BELOW REQLINE. THIS VOLTAGE IS OUT ALIED FROM THE GTR. THE CAUSE OF THIS PROBLEM IS NOT KNOWN.

SYSTEM EFFECT-OPERATION TOO LOW.

VEHICLE EFFECT-NONE.

CORRECTIVE ACTION-TEMPORARY FIX WAS TO SUBSTITUTE A RF1 BATTERY FOR THE GTR BATTERY SIMULATOR.

**FLIGHT CONTROL SYSTEM  
GSE  
DIFFICULTIES REVIEW**

DIFFICULTIES REVIEW FLIGHT CONTROL - GSE  
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GENERAL DYNAMICS  
CONVAIR DIVISION

## DIFFICULTIES REVIEW-FLIGHT CONTROL SYSTEM-66

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI DIF/OTH	VENDOR NAME VENDOR PART NO
FLIGHT CONTROL-GND TEST AND MONITOR	BLV-98-45-053-p AMPLIFIER WIRING	FAR 27-00121-3	65104 650737	650737 NO	650737 NO	TEK KINETICS NO NS03-T

FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. AMPLIFIER USED IN AUTOPILOT CHECKOUT EQUIPMENT. REJECTED BECAUSE OF NO OUTPUT. FAILURE ANALYSIS DID NOT CONCLUSIVELY ESTABLISH FAILURE MODE. HOWEVER, THE FAILURE WAS DUPLICATED BY TOUCHING AN UNPROTECTED GROUND SHIELD WIRE, ON A CAPACITOR LEAD, TO TERMINAL BOARD CONNECTIONS IN CLOSE PROXIMITY. THIS WAS CONSIDERED MOST PROBABLE FAILURE MODE.

CORRECTIVE ACTION-GND/C REQUESTED THAT VENDOR PROTECT ALL EXPOSED SHIELD WIRES WITH INSULATED SLEEVING. REFERENCE RA R BLV-98-45-3821.

FLIGHT CONTROL-GND TEST AND MONITOR	AAS-003/P4-FCD-0G-0505 ISOLATION AMPLIFIER	COMPOSITE-J FACT 65104	5304 65104	14 NO	TEK NO	650603
		27-00121-3				

FAILURE MODE-ERRATIC OPERATION. GROUND MONITOR MALL CIRCUITRY GAVE ERRATIC INDICATIONS DURING FACT PREPARATIONS. INVESTIGATION SHOWED THAT WITH MALL CIRCUITRY ISOLATION AMPLIFIER SET TO GAIN OF 10, THE AMPLIFIER SATURATED WITH INPUTS GREATER THAN 1.2 VOLTS.

SYSTEM EFFECT-IMPRESSED ANALOG SIGNALS. AMPLIFIER SATURATION RESULTED IN CLIPPING OF THE OUTPUT AND CAUSED ERRATIC INDICATIONS.

VEHICLE EFFECT-NONE. AMPLIFIER GAIN REDUCED TO 8 TO CORRECT CLIPPING BEFORE PERFORMING FACT.

CORRECTIVE ACTION-AFP SOUND CONTROL CALIBRATION PROCEDURE RY-9862A RKE, WAS CHANGED TO REFLECT GAIN CHANGE.

FLIGHT CONTROL-GND TEST AND MONITOR	FTASTSFAR-C7-9D-4500-002 BOLT, SIMULATOR BOX RELAY	COMPOSITE-J FACT 650605	5304 650605	150 NO	650603 NO	650600
		BS-64937-002				

FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. DURING THE PLUS COUNT TIME SWARD 1 EXPLOSIVE BOLT SIGNAL WAS NOT RECEIVED DUE TO A FAULTY RELAY IN THE BOLT SIMULATOR BOX.

SYSTEM EFFECT-NONE.

VEHICLE EFFECT-NONE.

CORRECTIVE ACTION-THE FAULTY RELAY HAS BEEN REPLACED.

FLIGHT CONTROL-GND TEST AND MONITOR	FTASTSFAR-C7-9D-4500-002 L/M/H CONTROL SIMULATOR SWITCH 17	COMPOSITE-J FACT 650731	5304 650731	150 NO	650603 NO	650600
		650731				

FAILURE MODE-FAIL TO OPERATE. DURING THE PLUS COUNT IT WAS OBSERVED THAT THE AUTOPILOT PROGRAMMER WAS NOT RUNNING. THE CAUSE OF THE PROBLEM WAS A PROGRAMMING ERROR WHICH PLACED LCB-18 IN THE WRONG POSITION.

SYSTEM EFFECT-OPERATION DOES NOT START. DURING THE PLUS COUNT, IT WAS OBSERVED THAT THE AUTOPILOT PROGRAMMER WAS NO

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GENERAL DYNAMICS  
CONVAIR DIVISION

DIFFICULTIES REVIEW-FLIGHT CONTROL SYSTEM-08E

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	01F DATA SOURCE PART NUMBER	VEHICLE DATE DIF	BITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO	000000
TEST AND MONITOR	T RUMBLE.						
FLIGHT CONTROL-GND	FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. RECYCLE TIME WAS 8 MINUTES. HOLD TIME WAS APPROXIMATELY ONE HOUR. CORRECTIVE ACTION-LSC-12 WAS PLACED IN THE CORRECT POSITION.	COMPOSITE-J FACTY FTABSD073-4CO-02-225 DECade EVENT TIMER/RELAY	8250 080707 13/ETR	18/ETR D	YES NO	000000	
TEST AND MONITOR	FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. THE DECADE EVENT TIMER ON THE PROGRAMMED MONITOR PANEL FAILED TO SET AT ZERO TIME ON THE FIRST COUNT AND ON A PLUS-OUT COUNT PROGRAMMED RUN. INITIALIZATION REVEALED THAT RELAY KB MAG AT PULSE.	COMPOSITE-J FACTY FTABSD073-4CO-02-225 DECade EVENT TIMER/RELAY	8250 080707 13/ETR	18/ETR D	YES NO	000000	
FLIGHT CONTROL-GND	SYSTEM EFFECT-OPERATION DOES NOT START.						
TEST AND MONITOR	VEHICLE EFFECT-NONE.						
TEST AND MONITOR	CORRECTIVE ACTION-NONE DURING THE TEST. THE RELAY WAS LATER REPLACED.						
FLIGHT CONTROL-GND	FAILURE MODE-FAIL DURING OPERATION. THE STRAY CURRENT FUSE IN THE CIR-ARM PINCHURE PREPARATION DESTRUCT CIRCUITRY WAS BLOWN AT SOME TIME DURING THE COUNT. NO CAUSE FOR SLOWED FUSE WAS FOUND DURING TEST RETURN.	PROTECHNIC CHECKOUT BOX FUSE NZASCF1A/PZ-4CO-03-196	1980 080206 13/ETR	18/ETR D	YES NO	000000	
TEST AND MONITOR	SYSTEM EFFECT-NONE.						
TEST AND MONITOR	VEHICLE EFFECT-COUNTDOWN DELAYED. THE COUNTDOWN WAS RECYCLED TWICE FOR A TOTAL OF 35 MINUTES RECYCLE TIME. CORRECTIVE ACTION-THE FUSE WAS REPLACED.						
FLIGHT CONTROL-GND	FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. THE SIMULATOR IS USED DURING MISSILE CHECKOUT TO SIMULATE SENSORS IN AN AUTOPILOT ARMED RUN. A RELAY IN THE SIMULATOR FAILED TO ACTUATE AT THE PROPER TIME. THE ASSEMBLY WAS FUNCTIONALLY TESTED, DISASSEMBLED, AND EXAMINED, BUT NO DEFECTS WERE FOUND.	SIMULATOR RELAY FAN-CT-98-230-067	1980 13-93708-013 13/ETR	18/ETR D	YES NO	000000	
TEST AND MONITOR	CORRECTIVE ACTION-THE FAILURE WAS NOT COMPLAINED. NO CORRECTIVE ACTION IS REQUIRED.						

GENERAL DYNAMICS  
CONVAIR DIVISION

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DIFFICULTY IN REVIEWING LIGHT CONTACT SYSTEMS 11

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE	SITE TIME	PRI DIF	VENOM NAME OTH VENDOR PART NO
FLIGHT CONTROL - GRIND	SAPBINE-USA/P-01-Q1-GAC4	COUNTDOWN	1460	36A/ETR	YES	
TEST AND MONITOR	MARNE 98	60-64-602	04104	-12000	NO	

IN CASE OF FAILURE MODE-FAIL TO CEASE OPERATION. THE FUEL EXPIRATION SIGNAL COULD NOT BE DISABLED AT THE A/P PANEL DUE TO SHORT CIRCUIT.

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LIGHT CONTROL-ENHANCED  
TEST AND MONITOR  
ISOLATION AMPLIFIER

FAILURE MODE-ERRATIC OPERATION. THE PITCH & YAW OUTPUT CONTAINED UNUSUAL OUTPUTS DURING THE FIRST 15 SEC. OF THE 60 SEC. SIGNAL BECAME UNSTABLE AT 60 ZERO TIME WHEN 610 WALKING WAS REMOVED. THE SIGNAL FROM THE ISOLATION AMPLIFIER CORRECTED ITSELF APPROXIMATELY 2 SEC. AFTER THE BEGINNING OF THE PITCH PROGRAM. THIS PROBLEM WAS FOUND TO BE DUE TO THE ISOLATION AMPLIFIER.

SYSTEM EFFECT-IMPROPER ANALOG SIGNALS. IMPROVED SIGNALS WERE RECEIVED ON THE BLOCKHOUSE RADIOPHONIC RECEIVER CHANNEL TH

**COLLECTIVE ALIGNMENT SIMULATION ANALYSIS AND RECALL.**

FAIL DURING OPERATION. DURING AN AUTOPILOT SYSTEM CHECKOUT, THE AMPLIFIER WAS INDUCING EXCESSIVELY HIGH OUTPUT VOLTAGE. AMPLIFIER OPERATION WAS DEFECTIVE, DUE TO A SHORTED TRANSISTOR. REPLACEMENT OF THE TRANSISTOR PRODUCED NORMAL OPERATION.

CORRECTIVE ACTION-IT WAS RECOMMENDED THAT THE VENDOR (KINETIC) SCREEN BNS33 DELCO TRANSISTORS TO ELIMINATE KINETIC FAILURE AND REQUEST IMPROVEMENT IN ITS ALLOWING PRE-  
COMPOSITE-J FACT 1950 26A/KTR YES  
ALUMINUM/PB-CO-DR-GAC'S 1950 NO  
LIGHT CONTROL-GRID 1950 NO

FAILURE MODE-FAIL TO CLAISE OPERATION AT PRESCRIBED TIME. THE FIRST HOOD/FIRE TEST OF THE SECOND RUN OF THE COMPOSITE WAS UNSATISFACTORY SINCE THE CIRCUIT DID NOT STOP THE SEQUENCER. THE FAILURE OCCURRED BECAUSE THE SYSTEM HAD NOT BEEN RESET AFTER THE FIRST COMPOSITE RUN.

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GENERAL STATISTICS

DILETTANTI IN THE FRENCH REVOLUTION

SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	BITE TIME DIF	PRI DIF QTH	VENDOR NAME VENDOR PART NO
SUB-SYSTEM						
SYSTEM EFFECT-OPERATION TOO LONG. THE SEQUENCER DID NOT STOP AT ~19 SECONDS.						
VEHICLE EFFECT-COMPOSITE DELAYED, AT HOLD OF 17 MINUTES AND A 5 MINUTE RECYCLE WAS REQUIRED.						
CORRECTIVE ACTION-THE CIRCUITRY WAS RESET AND THE TEST RETURNED SATISFACTORILY.						
RELAY CONTROL-BUS	FANCT-38-450-018 RELAY	64003	38403	YES	UNION SWITCH NO	UM53562
TEST AND MONITOR		67-17021-203				

SYSTEM-EFFECT-OPERATION TOO LONG. THE SEQUENCER DID NOT STOP AT -10 SECONDS.

VEHICLE EFFECT-COMPOSITE OKLAHD. AT HOLD OF 17 MINUTES AND A 3 MINUTE RECYCLE WAS REQUIRED.

THE JOURNAL OF CLIMATE

LIGHT CONTROL-GRND FAN-CT-92-430-018 FAN

FAILURE MODE-FAIL TO OPERATE. CONTACTS WERE DISCOVERED OPEN. THE FAILURE COULD NOT BE CONFIRMED IN FAILURE ANALYSIS ALTHOUGH ALL CONTACTS SHOWED WEAR AND INTermITTENT OPENS COULD BE EXPECTED.

CONNECTIVE ACTIVITY-IT WAS NEVER SO EASY TO PLACE A CALL OR INITIATE.

FLIGHT CONTROL - GND  
TEST AND MONITOR

FAILURE MODE-PREMATURE OPERATION-THREE RELAYS USED IN THE AUTOPILOT CONSOLE MATRIX DRAWER WERE REJECTED BECAUSE NOR FULLY CLOSED CONTACTS INDICATED OPEN CIRCUITS. THE FAILURES WERE CONFIRMED BY TEST IN FAILURE ANALYSIS. ALL OF THE AFFECTED CONTACTS SHOWED EVIDENCE OF BURNING. THE EXACT CAUSE OF BURNING WAS NOT DETERMINED. ONE RELAY SHIPPED SOME POLYACRYLIC FIBER CONTAMINANT GENERATED BY THE WHITE NYLON SPIDER USED TO MOVE THE SWIMMER ARMS.

CORRECTIVE ACTION - IT WAS RECOMMENDED THAT RELAYS BE CLEAN ROOM PROCESSED.

FLIGHT CONTROL -4&0  
TEST AND MONITORING

PART II  
A FAILURE MORE-DETERMINATE OPERATION, FUTURE CONSISTED OF ONE PAIR OF NORMAL & CLOSED CONTACTS APPEARING TO BE OPEN-CIRC  
LINED. THERE WAS NO EVIDENCE OF COMMUNIATION. REF. IN 95860.

CORRECTIVE ACTION—NO CORRECTIVE ACTION WAS TAKEN. THE FAILURE WAS NOT CONFIRMED.

LIGHT CONTROL - END  
EJECT AND MONITOR

FAILURE MODE-FAIL DURING OPERATION. THE RELAY IS USED IN THE AUTOPilot CONSOLE MATRIX DRAWER. TWO PAIRS OF CONTACTS ARE USED. THE FAILURES WAS CONFIRMED BY FAULTS ANALYSIS. THERE WAS NO EVIDENCE AS TO THE CAUSE OF THE BURNING.

GENERAL DYNAMIC  
CONVAIR DIVISION

18 JUN 1986

DIFFICULTIES REVIEW-FLIGHT CONTROL SYSTEM-ABC

SYSTEM SUB-SYSTEM	ICB / REPORT NUMBER FILED) COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE	SITE DATE DIF	TIME DIF	OTH VENDOR PART NO	VENDOR NAME
CORRECTIVE ACTION-NO CORRECTIVE ACTION WAS TAKEN.							
FLIGHT CONTROL-GAND TEST AND MONITOR	FAR-CI-98-43-012-P RELAY	FAR 87-37021-007	SEAVETR	YES UNION SWITCH	NO U138328	600749	600749
FAILURE MODE-PREPARE FOR OPERATION. THREE RELAYS USED IN THE AUTOPILOT CONSOL MATRIX DRAYER INDICATED OPEN CIRCUITS ON NORMALLY CLOSED CONTACTS. THE PULL UPS WERE CONFIRMED BY FAILURE ANALYSIS AND COULD BE ELIMINATED BY MOVING THE CONTACTS SLIGHTLY.							
CORRECTIVE ACTION-NO CORRECTIVE ACTION TAKEN.							
FLIGHT CONTROL-GAND TEST AND MONITOR	FAR-LV-98-54-229-T RELAY	FAR 87-37021-008	SEAVETR	YES UNION SWITCH	NO U138328	600749	600749
FAILURE MODE-FAIL TO CEASE OPERATION. THIS RELAY IS IN A RELAY DRAYER IN THE AUTOPILOT MONITOR AND CONTROL UNIT. FAULT CONSISTED OF ONE NORMALLY CLOSED CONTACT REMAINING OPEN. ANALYSIS REVEALED A BURNED CONTACT POINT, A BURNED ON EXCESSIVE CURRENT.							
CORRECTIVE ACTION-THE FAILURE WAS CONFIRMED. NO CORRECTIVE ACTION WAS TAKEN. SITE PERSONNEL COULD NOT ESTABLISH ANY EXCESSIVE CURRENT OCCURRENCE.							
FLIGHT CONTROL-GAND TEST AND MONITOR	FAR-CI-98-43-010-C RELAY	FAR 87-37021-008	SEAVETR	YES UNION SWITCH	NO U138328	600749	600749
FAILURE MODE-FAILED TO OPERATE AT PROPER TIME. TWO RELAYS FAILED WHEN NORMALLY CLOSED CONTACTS FAILED TO OPEN WHEN RELAY WAS ENERGIZED.							
CORRECTIVE ACTION-NO CORRECTIVE ACTION TAKEN.							
FLIGHT CONTROL-GAND TEST AND MONITOR	FAR-CI-98-43-010-C RELAY	FAR 87-37021-008	SEAVETR	YES UNION SWITCH	NO U138328	600749	600749
FAILURE MODE-FAILED TO OPERATE AT PROPER TIME. TWO RELAYS FAILED WHEN NORMALLY CLOSED CONTACTS FAILED TO OPEN.							
CORRECTIVE ACTION-NO CORRECTIVE ACTION TAKEN.							

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GENERAL ORGANICS

SIEGE IN SIRA REVIEWS: LIGHT COMING SYSTEMATIC

TEST/REPORT NUMBER		OIL DATA SOURCE	VEHICLE	SITE	PRI	VENDOR NAME
FAILED COMPONENT NAME		PART NUMBER	DATE OUT	TIME DIFF	OTH	VENOR PART NO
FLIGHT CONTROL - GND	PI-4C-03-187/LV-88-48-018	COMPOSITE-J FACT	1970	12/07A	YES	02266616
TEST AND MONITOR	AMPLIFIER RELAYS				NO	

**PROBLEM** FAILURE MODE-FAIL DURING OPERATION. THE VAN GYRO MULLING CIRCUIT DID NOT FUNCTION PROPERLY DURING ECT. THIS PROBLEM WAS CAUSED BY MALFUNCTIONS IN RELAY K1 AND K2 AND THE RELAY AMPLIFIER.

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RELAJ  
SIST AND NOM100  
LIGHT CAPTURED BY  
PAH-L-90-04-004-1  
07-0701-003  
NO UN334282

IN THE COURSE OF THE ASSEMBLY WHICH PREVENTED CLOTHING OF CONTACTS, THE FAILURE MODE-FAIL TO OPERATE. A FOREIGN PARTICLE (PIECE OF WIRE) NEAR ONE OF THE ARRESTING MAGNET POLES PREVENTED MOVEMENT OF THE ASSEMBLY WHICH PREVENTED CLOTHING OF CONTACTS.

**CORRECTIVE ACTION-THE VENDOR WAS NOTIFIED OF THE FAILURE. IT WAS RECOMMENDED THAT THIS PART BE REPLACED BY THE J-85**

RIGHT CONTROL-EBRD  
FAR-CT-09-03-013F  
080922Z NOV 09  
FM LIMA/PA-000  
TO UNION SWITCH  
NO LIMA/PA-000

FAILURE MODE-FAIL DURING OPERATION. CONTACTS 4 AND 5 INDICATED HIGH RESISTANCE/ENCLOSURE MISSILE CHECKOUT. SPAR ACT-2 IS REPORTED INSULATION LEAKAGE IN THE HARNESS ASSOCIATED WITH THIS RELAY, WHICH COULD ACCOUNT FOR THE INDICATED CONTACT RESISTANCE.

CONSTITUTIONAL CRIMINAL JUSTICE 247

RIGHT CONTROL-6 AND  
ST AND HOME FOR  
RELAY FAR C-18-53-005-F

IN THE PICTURE  
SEVEN RELAYS USED IN THE PRO-  
GRAMMING CIRCUIT ARE SHOWN.  
NORMALY CLOSED CONTACTS WERE OPEN CIRCUITED ON SEVEN RELAYS USED IN THE PROGRAMMING CIRCUIT. NORMALY CLOSED CONTACTS WERE OPEN CIRCUITED ON SEVEN RELAYS USED IN THE PROGRAMMING CIRCUIT.

REPLY.—*THE EDITOR*,—*THEY* WHO ASKED TO IMPROVE ABSURD AND INPECTION TECHNIQUE, ARE FEE

GENERAL DYNAMICS  
CONVAIR DIVISION

15 JUN 1966 DIFFICULTIES REVIEW-FLIGHT CONTROL SYSTEM-601

15 JUN 1966

SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	OIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF TIME DIF	SITE	PRI	VENDOR NAME CTN VENDOR PART NO
FLIGHT CONTROL-GND TEST AND MONITOR	FAR-CF-9B-4B-001-P ISOLATION AMPLIFIER	FAN SF-9010-3	09094	09A/ETR	YES	NO
						0909405
FAILURE MODE-FAIL TO OPERATE. THIS UNIT IS USED TO MONITOR AUTOPILOT SIGNALS AND TO ISOLATE THEM FROM THE GROUND REC ORDERS. THERE WAS NO OUTPUT WHEN AN INPUT VOLTSAGE WAS APPLIED. LAB TESTS SUGGESTED THAT THE PLUG TO VDC PTH AND THE SI NAL OUT PTH WERE BENT SO MUCH THAT THEY DID NOT MAKE CONTACT WITH THE KATING PLUGS.						
CORRECTIVE ACTION-NONE PERSONNEL WERE ENTHUSED OF THE RESULTS OF THE ANALYSIS. THESE PARTS ARE BEING REPLACED BY P/ N 25-08264.						
FLIGHT CONTROL-GND TEST AND MONITOR	A982-00167/P-4C-01-1L COAX VALVE DRIVING FUSE 160V HCK ME ATING	COMPOSITE-D FACT 020104	1/10 020104	1/ETR	YES	NO
						0909405
FAILURE MODE-FAIL TO OPERATE. ONLY ONE OF TWO BOOSTER SEPARATION COAX VALVE COULD FUSE BLOW WHEN THE BOOSTER SEPA RATOR SIGNAL WAS GENERATED BY THE PROGRAMMER. THIS PROBLEM WAS TRACED TO A CIRCUITRY DEFECT IN THE TEST BOX. A BATT ACTION TEST WAS SUBSEQUENTLY PERFORMED.						
CORRECTIVE ACTION-NONE MODE-FAIL TO OPERATE. ONE COAX VALVE COULD FUSE DID NOT BLOW DURING THE TEST. THIS REQUIRED A RE -RUN OF THIS PORTION OF THE TEST TO DEMONSTRATE SATISFACTORY SYSTEM OPERATION.						
VEHICLE EFFECT-NONE.						
CORRECTIVE ACTION-TIME CIRCUIT DEFECT WAS CORRECTED.						
FLIGHT CONTROL-GND TEST AND MONITOR	FAR-CF-9B-93-003-F ISOLATION AMPLIFIER	FAR SF-93030-3	01/10 SF-93030-3	01/ETR	YES	NO
						0909405
FAILURE MODE-DRIFT. DURING A DRIFT TEST, THE AMPLIFIERS DRIFTED OUT ON THE SPECIFIED NULL ZAMO. DURING EXTENSIVE LA BORATORY DRIFT TESTS, IT WAS CONCLUDED THAT THE UNITS WERE BEING USED WITH INCOMPATIBLE LOADS AT THE AMPLIFIER OUTPUT TERMINALS. IN EFFECT THIS WAS A X1 APPLICATION OF USE OF THE AMPLIFIERS.						
CORRECTIVE ACTION-IT WAS RECOMMENDED THAT THE PRESENT LINKS BETWEEN AMPLIFIERS AND LOADS BE REPLACED BY LOW CAPACITY ANNE COAX CABLE. IF THIS IS NOT FEASIBLE, AMPLIFIERS SHOULD BE REPLACED BY HIGHER CAPACITY AMPLIFIERS. FAILURE NOT C ONFINED.						
FLIGHT CONTROL-GND TEST AND MONITOR	A981-0202/P-93-301-00-19 ISOLATION AMPLIFIER	COUNTDOWN \$11130	3/5 \$11130	13/ETR	YES	NO
						0909405
FAILURE MODE-FAIL DURING OPERATION. THE ROLL RATE CYRO ISOLATION AMPLIFIER FAILED DURING THE FIRST LAUNCH ATTEMPT.						
SYSTEM EFFECT-UNKNOWN.						

19 JUN 1968

GENERAL DYNAMICS  
CONVAIR DIVISION

DIFFICULTIES REVIEW-FLIGHT CONTROL SYSTEM-SAE

STATCH	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE OFIP	BITE TIME OFIP	PRI 0TH	VENDOR NAME VENDOR PART NO	SEORE
VEHICLE EFFECT-NONE. THE COUNTDOWN WAS ABORTED DUE TO ANOTHER PROBLEM.							
CORRECTIVE ACTION-AMPLIFIER WAS REPLACED.							
FAILURE MODE-FAIL DURING OPERATION. THE COMPOSITE TEST PITCH ISOLATION AMPLIFIER FAILED DURING THE PAC TEST.							
SYSTEM EFFECT-UNKNOWN.							
CORRECTIVE ACTION-AMPLIFIER WAS REPLACED.							
FAILURE MODE-FAIL TO OPERATE. MEAS W/S AN OPEN WIRE IN THE AUTOCAL GURVO INPUT TRAY CIRCUIT BETWEEN THE TERMINAL BOARD AND THE VIBRATIONAL.							
SYSTEM EFFECT-HAVE.							
VEHICLE EFFECT-COMMUTATOR-CLAVIER. HOWL TIME IS NOT KNOWN.							
CORRECTIVE ACTION-UNKNOWN.							
FLIGHT CONTROL-GRID TEST AND MONITOR	A41-010974-102-00-02 BOARD X15/16	COUNTDOWN 01000	27 01000	134/UTN 00	YES NO	000004	
FAILURE MODE-ERRATIC OPERATION. WITH WIRE IN GARD CONNECTED TO THE SWRO TEST POINT, A NOISE PICKUP OF 80 MILLIVOLTS WAS PRESENT. THIS WAS SUFFICIENT TO CAUSE LOSS OF THE SHAG GYRO SPINNING INDICATION.							
SYSTEM EFFECT-IMPROPER ANALOG SIGNALS. AND LITE WOULD NOT GO OUT. DO BOTH THE GYRO CANISTER WERE REPLACED. THIS DID NOT HELP, THE SWRO LITE W/S STILL ON.							
VEHICLE EFFECT-COMMUTATOR ABORTED AND RESCHEDULED. THE COUNT WAS ABORTED AT T-90 MINUTES AND RESCHEDULED.							
CORRECTIVE ACTION-DECORLEY ELIMINATED BY CUTTING WIRE ZNEEDED NEAR EQUIPI-C AND TERMINATING IT TO GROUND ON THE SHIELD HALO.							

18 JUN 1968

GENERAL DYNAMICS  
CONVAIR DIVISION

## DIFFICULTIES REVIEW-FLIGHT CONTROL SYSTEM-681.

SYSTEM	TEST/REPORT NUMBER	DEFECT SOURCE	VEHICLE	BITE	PRI	VENDOR NAME
	FAILED COMPONENT NAME	PART NUMBER	DATE DIF	TIME DIF	GTH	VENDOR PART NO
FLIGHT CONTROL-SIMD TEST AND MONITOR	A800-01 107PF-401-00-01 WIRING	COUNTDOWN, EDG01A	910	18/ETR	NO	000070

FAILURE MODE-ERATIC OPERATION. EXTRANEOUS PROGRAMMER RESET SIGNALS WERE INDUCED IN THE HARDLINES BETWEEN THE BLOCKHOUSE AND THE RAMP. THE VOLTAGE WAS INDUCED BY VOLTAGE SURGES IN ADJACENT WIRING CAUSED BY PULL IN AND DROPOUT OF THE 2000 PSI RELAY IN THE BOOSTER HYDRAULIC SYSTEM.

SYSTEM EFFECT-IMPROPER DISCRETE SIGNALS. EXTRANEOUS PROGRAMMER RESET SIGNALS WERE BEING GENERATED.

VEHICLE EFFECT-COUNTDOWN ABORTED AND RESCHEDULED.

CORRECTIVE ACTION-DISPRESSION DIODES WERE ADDED ACROSS EACH EDG01 RELAY AND 9000 PSI RELAY IN THE BOOSTER HYDRAULIC SYSTEM.

SYSTEM	TEST/REPORT NUMBER	DEFECT SOURCE	VEHICLE	BITE	PRI	VENDOR NAME
	FAILED COMPONENT NAME	PART NUMBER	DATE DIF	TIME DIF	GTH	VENDOR PART NO
FLIGHT CONTROL-SIMD TEST AND MONITOR	08-04-001 HARNESS/WIRING	PAR AT-63973	910/CTA	YEAR 60C	NO	000070

FAILURE MODE-ERATIC OPERATION. EDG PROGRAMMER RESET SPURIOUSLY WHILE PERFORMING ENGINE WARMING. INVESTIGATION REVEALED THAT PROGRAMMER WOULD RESET EACH TIME BOOSTER HYDRAULIC 3000 PSI PRESSURE SWITCH ACTIVATED. SINCE PROGRAMMER WIRING IS LOCATED IN HARNESS ASSOCIATED WITH HYDRAULIC CONSOLE RELAYS, THE PROGRAMMER WAS BEING HEATED BY A TRANSIENT GENERATED WHEN THE HYDRAULIC CONSOLE SWITCH RELAY DE-ENERGIZED.

CORRECTIVE ACTION-THE USE OF DIODES ON HYDRAULIC CONSOLE RELAY AMP-REFUSED THE TRANSIENT AND ELIMINATED THE PROBLEM. PROBLEM EXISTING AT FIR COMPLEX 13 ONLY. ACTION FOR FWA23975.

SYSTEM	TEST/REPORT NUMBER	DEFECT SOURCE	VEHICLE	BITE	PRI	VENDOR NAME
	FAILED COMPONENT NAME	PART NUMBER	DATE DIF	TIME DIF	GTH	VENDOR PART NO
FLIGHT CONTROL-SIMD TEST AND MONITOR	08013 AUDIO WARMING AMPLIFIER	COUNTDOWN EDG01D	910	18/ETR	NO	000088

FAILURE MODE-FAILED DURING OPERATION.

SYSTEM EFFECT-OPERATION NOT PRECISELY.

VEHICLE EFFECT-COUNTDOWN RELATED TO CHANNEL AUDIO WARMING AMPLIFIER (6 MINUTES).

CORRECTIVE ACTION-REPLACE AUDIO WARMING AMPLIFIER.

SYSTEM	TEST/REPORT NUMBER	DEFECT SOURCE	VEHICLE	BITE	PRI	VENDOR NAME
	FAILED COMPONENT NAME	PART NUMBER	DATE DIF	TIME DIF	GTH	VENDOR PART NO
FLIGHT CONTROL-SIMD TEST AND MONITOR	FPAZ13/PB-402-01-02 LIGHT	COMPOSITE-S FACT LIGHT	820	18/ETR	NO	000088

FAILURE MODE-FAIL TO OPERATE. THE MOTOR FOR PNEUMATIC VIBRATOR TANK IN THE KEY BOX WAS BURNING-OUT.

SYSTEM EFFECT-SNAP-OFF DISCRETE SIGNAL. FAILURE OF THE LAMP INDICATED ABSENCE OF THE SIGNAL.

VEHICLE EFFECT-NONE.

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GENERAL DYNAMICS  
CONVAIR DIVISION

## DIFFICULTIES REVIEW-FLIGHT CONTROL SYSTEM-688

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIY DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PAL OTH	VENOR NAME VENOR PART NO
						000003
CORRECTIVE ACTION-THE LAMP WAS REPLACED AND THE AUTOPILOT FUNCTION WAS VERIFIED.						
FLIGHT CONTROL-GND TEST AND MONITOR	FTAG0879-4CO-01-17 AUTOPILOT INPUT FUSES	COMPOSITE-B FACT S9087 S9087	17A 18/6TR	18/6TR TEG NO		000004
FALURE MODE-OUT OF TOLERANCE. AUTOPILOT PROBABILITY OUTPUT FUSE SIZE WAS INCORRECT AND CORRECT OUTPUT COULD NOT BE VERIFIED.						
SYSTEM EFFECT-IMPROPER DISCRETE SIGNALS. AUTOPILOT PROGRAMMER OUTPUT FUSE SIZE WAS INCORRECT AND CORRECT OUTPUT COULD NOT BE VERIFIED IN THE SYSTEM.						
VEHICLE EFFECT-COMPOSITE DELAYED.						
CORRECTIVE ACTION-REFURM SPECIAL TESTS. AFTER THE TEST COMPLETION, TO VERIFY PROPER PROGRAMMER OPERATION.						
FLIGHT CONTROL-GND TEST AND MONITOR	FTAG0879-3CO-01-00 PANEL LIGHT WIRES	COMPOSITE-B FACT S90707	8C S90707	18/6TR YES NO		000005
FALURE MODE-FAIL TO OPERATE AT DESIGNATED TIME. THE PRESSURIZED VEHICLE TANKS PANEL LIGHT DID NOT ILLUMINATE DUE TO AN IMPROPER WIRING CONNECTION.						
SYSTEM EFFECT-PNL. TIC FUNCTION WAS PROPERLY RECEIVED AT THE MISSILE.						
VEHICLE EFFECT-NONE.						
CORRECTIVE ACTION-CORRECTED WIRING CONNECTION.						
FLIGHT CONTROL-GND TEST AND MONITOR	FTA ASY/TZ-7EN-04-9 CIRCUIT WIRES	COMPOSITE-B FACT S90710 S90710	8C -60U	18/6TR NO		000006
FALURE MODE-PREVENTIVE OPERATION. THE SHUTTLE CUTOFF SIGNAL WAS DEPLETED AS SOON AS ENABLED DUE TO INCORRECT HARNESS WIRING IN MISSILE AND GROUND TUBE CIRCUITY.						
SYSTEM EFFECT-IMPROPER DISCRETE SIGNALS. SIGNALS WERE INITIATED PREMATURELY AS SOON AS ENABLED						
VEHICLE EFFECT-COMPOSITE DELAYED. HOLD TIME WAS 42 MINUTES.						
CORRECTIVE ACTION-REFURM CANISTER WIRES AND WIRES CONNECTED.						
FLIGHT CONTROL-GND TEST AND MONITOR	FTAG2627/22-1CO-01-11 Amplifier	COMPOSITE-B FACT S9114	18/6TR TEG NO			000007
FALURE MODE-FAIL DURING OPERATION. THE BUCKING AMPLIFIER FOR THE PITCH CHANNEL A PART OF THE GROUND TEST EQUIPMENT FAILED.						

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GENERAL DYNAMICS  
CONVAIR DIVISION

## DIFFICULTIES REVIEW-FLIGHT CONTROL SYSTEM-GSC

SYSTEM SUS-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF TIME DIF	SITE OTH VENDOR PART NO	PRI VENDOR NAME	SECTS
<b>SYSTEM EFFECT-IMPROPER ANALOG SIGNALS. FAILURE OF THE BUCKOUT AMPLIFIER PERMITTED THE PITCH PROGRAM TO BE APPLIED ON HEW. FOR TEST PURPOSES, IT WAS UNDESIRABLE.</b>						
<b>VEHICLE EFFECT-COMPOSITE DELAYED.</b>						
<b>CORRECTIVE ACTION-THE AMPLIFIER WAS REPLACED.</b>						
FLIGHT CONTROL-GNC ELECTRICAL CONTROL	FAC-CY-88-430-023 RELAY	FAC 88-73001-015	680007	388/ETR YES POTTER, BRUNSW NO LD SCT748U	680008	
FAILURE MODE-FAIL TO CEASE OPERATION. THE RELAY WAS REJECTED BECAUSE CONTACTS 1 AND 3 WERE SHORT CIRCUITED. TIC CHA 8816 HAD BEEN AFFECTED BY AN ALARM INVERTER OVERLOAD CONDITION ON AUG 9. (PAC-FCT-OB-181-070 AND FAR-C-88-430-022) AND MANT HAD BEEN SUBJECT TO EXCESSIVE CURRENT WHICH CAUSED THE CONTACTS TO WELD TOGETHER. THE FAILURE WAS CONFIRMED. A FRACTURED SPACER CONNECTION WAS ALSO FOUND.						
<b>CORRECTIVE ACTION-11 WAS RECOMMENDED THAT ALL OF THE RELAYS INVOLVED IN THE OVERLOAD INCIDENT BE TESTED FOR CONTACT DAMAGE. IT WAS ALSO RECOMMENDED THAT THE VENDOR BE NOTIFIED ABOUT THE BROKEN SPACER CONNECTION.</b>						
FLIGHT CONTROL-GNC ELECTRICAL CONTROL	STACO/TFAI-C7-30-430-LCR SCLAF	CONT 8152-EFACT 98003 88-3403T-015	1510 98003 NO	388/ETR YES UC748D NO LD SCT748U	680009	
FAILURE MODE-PREMATURE OPERATION. THE WIPER ARM PROGRAMMED AND SIGNAL ATTACHMENT IN THE GSC WENT INTO OPERATING PROPERTY DUE TO A RELAY, OR RELAYS, MALFUNCTIONING IN THE SYSTEM.						
<b>SYSTEM EFFECT-TERRIFIC OPERATIONS.</b>						
<b>VEHICLE EFFECT-NONE.</b>						
<b>CORRECTIVE ACTION-REPLACED THE SUSPECT RELAY IN THE GSC.</b>						
FLIGHT CONTROL-GNC ELECTRICAL CONTROL	FAC-CY-88-430-022 RELAY	FAC 88-73001-015	680008	388/ETR YES POTTER, BRUNSW NO LD SCT748U	680009	
FAILURE MODE-PREMATURE OPERATION. THIS RELAY IS IN A GROUND SUPPORT AUTO-ILOT CHASSIS WHICH TRANSFERS GROUND AC POWER TO AIRBORNE POWER. IT FAILED WHEN INSTALLED IN THE CHASSIS. BY STICK IN THE KINETIC POSITION WHEN DE-ENERGIZED, EXAMINATION REVEALED A BENT WIPER ARM WHICH PREVENTED MOVEMENT OF THE ARMS. THE WIPER ARM PROBABLY WAS BENT ONE OR DURING ASSEMBLY OF THE RELAY.						
<b>CORRECTIVE ACTION-IT WAS RECOMMENDED THAT THE VENDOR SKINFIND WIND ABOUT THE BENT WIPER ARM.</b>						

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DIFFICULTIES REVIEW-FLIGHT CONTROL SYSTEM-HOSE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	BITE TIME DIF	PRI OTH	VENOR NAME VENOR PART NO
FLIGHT CONTROL-GND ELECTRICAL CONTROL	60C/BKP60-047/L4-T02-00-7109 RELAY	COUNTDOWN 680089	7109 680089	2-4 -80	YES NO	680470
	FAILURE MODE-OPEN (ELECTRICAL). NO-2 AND NO-3 CONTACTS OF 32A1K34 TIME RELAY FAILED OPEN. LAB ANALYSIS REVEALED CONTACT SURFACES WERE CONTAMINATED WITH THERMOSETTING PLASTIC PARTICLES WHICH CAN PREVENT CONTACTS FROM COMPLETELY CLOSING.					
	SYSTEM EFFECT-IMPROPER DISCRETE SIGNAL. BECAUSE OF CONTACT FAILURE, LAUNCH CONTROL LOGIC FAILED TO LOCK-UP COUNTDOWN SEQUENCE @ 20 VOLTS POWER WHEN COUNT SWITCH DEPRESSSED.					
	VEHICLE EFFECT-COUNTDOWN DELAYED. 10-MINUTE HOLD CALLED.					
	CORRECTIVE ACTION-RELAY VENDOR TO INVESTIGATE PROBLEM. CORRECTIVE ACTION TAKEN DURING COUNTDOWN WAS TO JUMPER OUT RELAY.					
FLIGHT CONTROL-GND ELECTRICAL CONTROL	DA1044 RELAY	COUNTDOWN 680087	410 680087	B-2 NO	YES NO	680393
	FAILURE MODE-FAIL DURING OPERATION. FAILURE OF NORMALLY CLOSED CONTACTS OF A2K21 IN THE MASTER SEQUENCER. CONTACTS REMAINED OPEN WHEN THE RELAY WAS DEENERGIZED.					
	SYSTEM EFFECT-OPERATION STOPS PREMATURELY. CLOSED FC-2 DURING FUEL RAPID LOAD PERMITTING A HYDRAULIC RAM CONDITION TO DAMAGE THE FUEL V DUCT.					
	VEHICLE EFFECT-COUNTDOWN ABORTED AND RESCHEDULED.					
	CORRECTIVE ACTION-RELAY REPLACED.					
FLIGHT CONTROL-GND ELECTRICAL CONTROL	22H63-003/D426 AUTOPILOT GROUND CHECKOUT UNIT	COUNTDOWN 680509	1180 680509	1-2 NO	NO NO	680394
	FAILURE MODE-ERRATIC OPERATION. INTERTINENT AUTOPILOT GROUND CHECKOUT UNIT MALFUNCTION DURING COUNTDOWN LOOP TEST.					
	SYSTEM EFFECT-OPERATION DOES NOT START. START D-TIMER DISCRETE FAULTED ON LAUNCH ANALYST PANEL.					
	VEHICLE EFFECT-COMPOSITE DELAYED.					
	CORRECTIVE ACTION-UNKNOWN.					
FLIGHT CONTROL-GND ELECTRICAL CONTROL	HG-93-49-008-F RELAY	PAR 680713	12/ETR NO UNKN SWITC	YES UNKN SWITCH NO UNKN 92850		
	FAILURE MODE-FAIL DURING OPERATION. RELAY WAS IN FAILED CONDITION WHEN RECEIVED AT COMPLEX 12. CONTINUITY CHECK INDICATED OPEN CIRCUIT CONDITION IN COIL. FAILURE ANALYSIS CONFIRMED OPEN CIRCUIT; HOWEVER, PROBLEM DISAPPEARED WHEN RELAY WAS OPENED. EXACT FAILURE MODE NOT DETERMINED.					

18 JUN 1988

GENERAL DYNAMICS  
CONTINENTAL DIVISION

DIFFICULTIES REVIEW-FLIGHT CONTROL SYSTEM-082

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
						0000000

CORRECTIVE ACTION-LAUNCH COMPUTER DESIGN GROUP APPARENTLY APPROVED INTERIM DESIGN CHANGE OF UNKNOWN NATURE AND STATED THAT PERMANENT CORRECTION SHOULD BE UNNECESSARY. REFERENCE DESIGN GROUP MEMO A82-082-3-QRT, DATED 30 AUGUST 88.

FLIGHT CONTROL-SERVO ELECTRICAL CONTROL	A820-082S/SDAP2-402-00-91 SERVING	COUNTDOWN 083243	810 083243	12 -19	YES NO	0000000
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FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. TCC READY LIGHT DID NOT COME ON BECAUSE ACUSTICA MU SYSTEM WAS NOT ABOARD. HUMAN FAILURE.

SYSTEM EFFECT-OPERATION DOES NOT START. LADDER IN READY SYSTEM BROKEN.

VEHICLE EFFECT-COUNTDOWN DELAYED 18 MINUTES.

CORRECTIVE ACTION-WIRING ACUSTICA READY PORTION OF READY SYSTEM.

FLIGHT CONTROL-SERVO ELECTRICAL CONTROL	F112000001-4CD-08-23	COMPATIBILITY-F FACT 0000000	490 0000000	12 0	YES NO	0000000
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FAILURE MODE-EFFECTURE OPERATION. THE 2 INCH MOTION SIGNAL WAS REMOVED PRIOR TO EJECTION OR UNDILATED PLUG. CAUSING THE AUTOPilot PROGRAMMER TO START AT PLUG IS SECOND.

SYSTEM EFFECT-OPERATION STARTS TOO EARLY. INC AUTOPilot PROGRAMME STARTED AT PLUG 18 SECONDS DUE TO EARLY REMOVAL OF THE 2 INCH MOTION SIGNAL.

VEHICLE EFFECT-MODE-

CORRECTIVE ACTION-NONE.

FLIGHT CONTROL-SERVO ELECTRICAL CONTROL	A820-082-402-00-14 DIGITAL VOLTMETER	COUNTDOWN 0830000	120 0830000	AS YES	YES NO	0000000
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FAILURE MODE-OUT OF EXPECTED TEST VALUE. THE ROLL VOLTAGE OF THE LAUNCH CONTROL CONSOLE INDICATED ERRONEOUS VALUE DUE TO FAULTY VOLTMETER.

SYSTEM EFFECT-NONE.

VEHICLE EFFECT-COUNTDOWN DELAYED.

CORRECTIVE ACTION-UNKNOWN.

GENERAL DYNAMICS  
CONVAIR DIVISION

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ELECTRICAL REVIEW-FLIGHT CONTROL SYSTEMS

SYSTEM SUB-SYSTEM		TEST/REPORT NUMBER FAILED COMPONENT NAME	DEF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
FLIGHT CONTROL - GRIND		KM133C/P4-402-GU-10 RELAY, VYRO TORSULINE TEST	FRT	100	34	YES	
ELECTRICAL CONTROL				800003		NO	

FAILURE MODE-FAILED TO OPERATE AT PRESCRIBED TIME. DURING PRECOUNT AND COUNTDOWN A RELAY IN THE FLIGHT CONTROL SYSTEM TORQUEING TEST EQUIPMENT FAILED TO ACTIVATE.

AVOID TABACCO TEA/TIA AND COFFEE/TEN DURING COUNTDOWN AND RECOUNT.

**CORRECTIVE ACTION-HOME INDICATED.**

AGGREGATE CONTROL SYSTEM FOR ELECTRICAL CONTROL

FAILURE MODE/PREVENTATIVE OPERATION. THE GO/WILLIAN BOOKER STATION AND HIGH CREEK SEPARATION PUMPS WERE INOP. CAUSE UNKNOWN. PUMPS COULD NOT BE DETERMINED.

CONNECTIVE TISSUE

**GUIDANCE SYSTEM  
GSE  
DIFFICULTIES REVIEW**

DIFFICULTIES REVIEW GUIDANCE SYSTEM GSE  
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GENERAL DYNAMICS  
CONVAIR DIVISION

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DIFFICULTIES REVIEW-GUIDANCE SYSTEM-G-E

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIR DATA SOURCES PART NUMBER	VEHICLE DATE DIF TIME	SITE C/F OTH	PRI VENDOR NAME VENDOR PART NO
GUIDANCE-G-E MOU 10-6RIO	FT44888/P4-003-00-6	COUNTDOWN 86 580914 -480	14 NO	YES	01134U
FAILURE MODE-OUT OF TOLERANCE. REPORT ENTRIES ARE 8886 OR ESTIMATES 10 MIN. TO CHANGE DRIVERS. 2158 GUIDANCE AT 10%					
INTERMITTENT.					
SYSTEM EFFECT-COUNTDOWN DELAYED. TOTAL TIME LOSS 28 MIN HOLD AND 3.6 MIN CYCLE MAY NOT ALL BE FOR THE SAME PROBL					
EM.					
CORRECTIVE ACTION-UNKNOWN.					
GUIDANCE-G-E MOU 11-6RIO	EM1338-P4-402-00-10	F/F	100 590903 -120	14 NO	000347
FAILURE MODE-ERRATIC OPERATION. THE GUIDANCE SYSTEM GROUND STATION COMPUTER GENERATED A NO-GO INDICATION DURING A N					
OLD CONDITION INITIATED AT -2 MINUTES. THE COMPUTER RETURNED TO NORMAL OPERATION AFTER RE-POSITIONING THE TRACKING A					
NTENNA ON THE VEHICLE.					
SYSTEM EFFECT-NONE. THE AIRBORNE SYSTEM WAS NOT DIRECTLY AFFECTED BY THE GROUND STATION DISCREPANCY.					
VEHICLE EFFECT-COUNTDOWN DELAYED. THE HOLD FOR LOW FILL AND DRAIN VALVE FAILURE TO CLOSE WAS EXTENDED TO PERMIT COR					
RECTION OF THE COMPUTER DISCREPANCY. THE COMBINED HOLD LASTED 9 MINUTES.					
CORRECTIVE ACTION-NONE INDICATED. DISCREPANCY WAS CORRECTED BY RE-SETTING THE ANTENNA BUT NO FURTHER ACTION WAS IND					
ICATED.					
GUIDANCE-G-E MOU 11-6RMO	FT44579/P1-202-00-11	COUNTDOWN 86 580904 -480	11 NO	YES	000310
FAILURE MODE-OUT OF TOLERANCE. G-E. GUIDANCE TRACK NO. 1 EXPERIENCED MULTIPATH PROBLEMS WHICH MADE THE SYSTEM NO-GO					
SYSTEM EFFECT-IMPROPER ANALOG SIGNALS. G-E. GUIDANCE TRACK NO. 1 HAD A FLUCTUATING SIGNAL DUE TO MULTIPATH MAKING TH					
E SYSTEM NO-GO.					
VEHICLE EFFECT-COUNTDOWN DELAYED. HOLD TIME 6 MINUTES.					
CORRECTIVE ACTION-USE SYSTEM NO. 2 AS PRIMARY.					
GUIDANCE-G-E MOU 11-6RMO	FT44529/P1-203-00-08	COUNTDOWN 86 581116 -1980	11 NO	NO	
FAILURE MODE-FAIL DURING OPERATION.					
SYSTEM EFFECT-OPERATION STOPS PREMATURELY. GROUND GUIDANCE TRACK SYSTEM WAS UNABLE TO BORESIGHT THE ANTENNA.					
VEHICLE EFFECT-COUNTDOWN DELAYED. 14 MINUTES HOLD 1 MINUTE CYCLE.					
PAGE ONE					

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GENERAL SERVICES

DIRECTORIAL REVIEW-GUIDANCE SYSTEMS-93

SYSTEM	TEST/REPORT NUMBER	DIF DATA SOURCE	VEHICLE	BITE	PRI	VENDOR NAME
BLG-SYSTEM	FAILED COMPONENT NAME	PART NUMBER	DATE DIF	TIME DIF	OTH	VENDOR PART NO
600402						
CORRECTIVE ACTION-CHANGED THYRATRON IN AZIMUTH.						
600403						
GUIDANCE-6E MOD 11-GRND	FTA4326/P1-202-00-00	COUNTDOWN	00 501114	11 -1000	YES NO	
FAILURE MODE-FAIL DURING OPERATION.						
SYSTEM EFFECT-ERRATIC OPERATION. GROUND GUIDANCE SYSTEM NO. 1 ANGLE READOUT UNSATISFACTORY. ALSO THERE WERE MULTIPLE E DROPOUTS IN AZIMUTH.						
600404						
VEHICLE EFFECT-COUNTDOWN DELAYED. 50 MINUTES HOLD BY MINUTES RECYCLE.						
CORRECTIVE ACTION-REPLACED DIOCE PACKAGE ON THE CONVERTER. TWICE.						
600405						
GUIDANCE-6E MOD 11-GRND	FTA4323/P1-204-00-00	COUNTDOWN	00 501118	11 -900	YES NO	
FAILURE MODE-FAIL DURING OPERATION. DUE TO BURNED OUT TRACK RECEIVER CRYSTALS.						
SYSTEM EFFECT-OPERATION STOPS PREMATURELY.						
600406						
VEHICLE EFFECT-COUNTDOWN DELAYED. 18 MINUTES HOLD.						
CORRECTIVE ACTION-REPLACED CRYSTALS.						
600407						
GUIDANCE-6E MOD 11-GRND	FTA4268/P3-202-00-00	COUNTDOWN	00 500010	11 -6000	YES NO	
FAILURE MODE-FAIL DURING OPERATION.						
SYSTEM EFFECT-COUNTDOWN DELAYED. 5 MINUTE HOLD.						
600408						
CORRECTIVE ACTION-Faulty coaxial cable replaced at Guidance Ground Station.						
600409						
GUIDANCE-6E MOD 11-GRND	FTA4268/P3-202-00-00	COUNTDOWN	00 500010	11 -300	YES NO	
FAILURE MODE-FAIL DURING OPERATION. GUIDANCE SYSTEM 1 TRACK ENCODER FAULT FROM A BAD TUBE.						
SYSTEM EFFECT-ERRATIC OPERATION. INEFFECTIVE TRIGGER PHASE IN TRACK SUBSYSTEM CAUSED BY FAULTY ENCODER.						
600410						
VEHICLE EFFECT-COUNTDOWN DELAYED. 20 MINUTE HOLD AND 2 MINUTE RECYCLE.						
CORRECTIVE ACTION-BAD TUBE IN SYSTEM 1 ENCODER DID NOT HAVE OPERATIONAL SPARE. ENCODER REPLACED.						

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GENERAL DYNAMICS

DIFFICULTIES REVIEW-GUIDANCE SYSTEM - 38

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DI/F DATA SOURCE PART NUMBER	VEHICLE DATE DIF	8116 TIME DIF	PRI OTH	VENOR NAME VENOR PART NO
GUIDANCE-GE MOD 11-6/RND	FTA4200/P1-808-00-88	COUNTDOWN	58 860008	11 -279	YES NO	
FAILURE MODE-FAIL DURING OPERATION-GUIDANCE TAPE RECORDER IN GROUND STATION FAILED.						
SYSTEM EFFECT-NONE.						
VEHICLE EFFECT-COUNTDOWN DELAYED. 5 MINUTE HOLD AND ONE MINUTE 21 SECOND RECYCLE.						
CORRECTIVE ACTION-NONE. EVALUATED SITUATION AND DECIDED TO GO WITHOUT RECORDER.						
GUIDANCE-GE MOD 11-6/RND	FTA4101/P1-804-00-4	COUNTDOWN	49 860002	13 -7260	YES NO	
FAILURE MODE-OUT OF TOLERANCE. GE GROUND GUIDANCE SYSTEM NO. C NO-GO.						
SYSTEM EFFECT-NONE.						
VEHICLE EFFECT-COUNTDOWN DELAYED 30 MINUTES AT T-110.						
CORRECTIVE ACTION-INVESTIGATE-REPORTED GO AT T-100 MINUTES-NO FURTHER ACTION TAKEN.						
GUIDANCE-GE MOD 11-6/RND	FTA4102/P3-203-00-4	COUNTDOWN	46 860001	13 -4900	YES NO	
FAILURE MODE-FAIL DURING OPERATION. GE GUIDANCE GROUND STATION WAS EXPERIENCING DIFFICULTY IN THEIR NUMBER TWO BEACON SYSTEM.						
SYSTEM EFFECT-LOSS OF REDUNDANCY. AFTER FURTHER TESTING GE DECIDED TO GO WITHOUT SYSTEM NO. P.						
VEHICLE EFFECT-COUNTDOWN DELAYED. HELD AT T-80 FOR 15 MINUTES FOR FURTHER TESTING.						
CORRECTIVE ACTION-NONE.						
GUIDANCE-GE MOD 1118-6/RND	AEG0-0539/P2-402-00-32	COUNTDOWN	390 600009	12 -60	YES NO	
FAILURE MODE-FAIL DURING OPERATION. GE GROUND STATION HAD A RECORDING PROBLEM.						
SYSTEM EFFECT-NONE. GROUND STATION APPEARED TO BE SENDING NEGATIVE COMMANDS. HOWEVER, THIS WAS A GROUND RECORDING PROBLEM ONLY.						
VEHICLE EFFECT-COUNTDOWN DELAYED TO RESOLVE PROBLEM. NO HOLD FAILED.						
CORRECTIVE ACTION-UNKNOWN.						

GENERAL DYNAMICS  
CONVAIR DIVISION

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DIFFICULTIES REVIEW-GUIDANCE SYSTEM-406

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DATA SOURCE PART NUMBER	VEHICLE DATE OFF	SITE TIME OFF	PRI OTH	VENDOR NAME PART NO
GUIDANCE-6E MOD 111B-GND	AEG0-0040/ADAPS-402-00-48	COUNTDOWN	490 000211	13 -2400	YES NO	000000
FAILURE MODE-ERRATIC OPERATION. DATA READINGS OF ALL FUNCTIONS IMPROPER IN GROUND GUIDANCE.						
SYSTEM EFFECT-ERRATIC OPERATION.						
VEHICLE EFFECT-DELAYED COUNTDOWN 11 MINUTES.						
CORRECTIVE ACTION-MODULE REPLACED IN GROUND GUIDANCE STATION.						
GUIDANCE-6E MOD 111B-GND	PTA0348/P3-403-00-19	COUNTDOWN	150 001124	13 -4200	YES NO	000000
FAILURE MODE-ERRATIC OPERATION. THE OUTPUT POWER OF THE TRACK SYSTEM TRANSMITTER AT THE GUIDANCE GROUND STATION WAS OBSERVED TO BE OCCASIONALLY DROPPING TO A LOWER LEVEL THAN NORMAL.						
SYSTEM EFFECT-OPERATION TOO LCH.						
VEHICLE EFFECT-COUNTDOWN DELAYED. 50 MINUTE HOLD.						
CORRECTIVE ACTION-DEFECTIVE MODULATOR TUBES WERE REPLACED BY A MATCHED SET OF TUBES.						
GUIDANCE-6E MOD 111B-GND	PTA0610/P1-404-00-16	COUNTDOWN	160 001006	13 -300	YES NO	000001
FAILURE MODE-OUT OF TOLERANCE. GE GROUND STATION EXPERIENCED UNSATISFACTORY RATE RECORDING READOUT.						
SYSTEM EFFECT-IMPROPER ANALOG SIGNALS IN GROUND STATION RATE RECORDING READOUT.						
VEHICLE EFFECT-COUNTDOWN DELAYED TO RESOLVE PROBLEM. 15 MINUTES HOLD.						
CORRECTIVE ACTION-REPLACE TWO RATE RECORDING EQUIPMENT MODULES.						
GUIDANCE-6E MOD 111B-GND	PTA0605/P2-303-00-11	COUNTDOWN	140 000204	12 -2400	YES NO	000002
ANTENNA AND WAVEGUIDE						
FAILURE MODE-FAIL DURING OPERATION. THE BOTH RATE RECEIVER ANTENNA SLAVING SERVO WAS SUSPECTED TO BE DEFECTIVE.						
SYSTEM EFFECT-ERRATIC OPERATION. GUIDANCE GROUND STATION RATE ANTENNA SLAVING SERVO MOTOR WAS NOT OPERATING PROPERLY.						
VEHICLE EFFECT-COUNTDOWN DELAYED. A 50 MINUTE HOLD WAS REQUIRED.						
CORRECTIVE ACTION-DURING ATTEMPTS TO RESOLVE THE PROBLEM PROPER OPERATION WAS ATTAINED AND THE CONDITION COULD NOT BE DUPLICATED.						
GUIDANCE-6E MOD 111B-GND	PTA0407/P1-404-00-11	COUNTDOWN	110 000200	11 -3500	YES NO	000003
FAILURE MODE-FAIL TO OPERATE AT PREScribed TIME. GUIDANCE GROUND STATION DID NOT SEND VECO DISCRETE.						
SYSTEM EFFECT-IMPROPER DISCRETE SIGNAL. NO GUIDANCE VECO DISCRETE WAS GENERATED.						
						PAGE 0004

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CONVAIR DIVISION

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DIFFICULTIES REVIEW-AUDIANCE SYSTEM-66E

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIR DATA SOURCE PART NUMBER	VEHICLE	SITE	PRI	VENDOR NAME VENDOR PART NO
GUIDANCE-6E MOD 111B-GND	FTA479/PZ-106-00-10	COUNTDOWN	AD	13	YES	690447
			590414		NO	
VEHICLE EFFECT-NONE.						
CORRECTIVE ACTION-LOOP TEST RERUN.						
FAILURE MODE-FAIL DURING OPERATION.						
SYSTEM EFFECT-NONE						
VEHICLE EFFECT-COUNTDOWN DELAYED START OF COUNTDOWN DELAYED 15 MINUTES.						
CORRECTIVE ACTION-UNKNOWN-HELD TO INVESTIGATE A GROUND GUIDANCE STATION CONICAL ANTENNA BUREAUS SHIFTING PROBLEM.						
GUIDANCE-6E MOD 111B-GND	FTA479/PZ-102-00-03	COUNTDOWN	3D	13	NO	690449
			590414	-8100	NO	
FAILURE MODE-OUT OF TOLERANCE. NOISY RANGE READOUT FROM TRACKING EQUIPMENT. DETERMINED TO BE A RECORDER PROBLEM.						
SYSTEM EFFECT-IMPROPER ANALOG SIGNALS. NOISY RANGE READOUT FROM TRACKING EQUIPMENT.						
VEHICLE EFFECT-COUNTDOWN DELAYED. 40 MINUTE HOLD TO INVESTIGATE PROBLEM.						
CORRECTIVE ACTION-INVESTIGATED AND DETERMINED TO BE A RECORDER PROBLEM.						
GUIDANCE-6E MOD 111B-GND	ZC-Y-220/PZ-301-00-07	FLIGHT	TC	12	YES S.E.	690414
			590310	46	NO	
COMPUTER						
FAILURE MODE-ERRATIC OPERATION. TANK LOCK WAS INTERMITTENT FOLLOWING SWITCH TO AUTOMATIC TRACK FROM MANHOLE HOLD AT 48 SECONDS. SWITCH ARRANGEMENT REQUIRES FLIPPING THROUGH CONICAL MODE TO REACH AUTOMATIC MODE. BECAUSE OF LARGE CONICAL ERRORS. SYSTEM WAS FORCED INTO CONICAL TRACK AND AZIMUTH TRACKING WAS ERRATIC.						
SYSTEM EFFECT-IMPROPER ANALOG SIGNALS. LACK OF GOOD INPUT DATA TO THE COMPUTER RESULTED IN GENERATION OF ONLY ZERO-MAGNITUDE STEERING COMMANDS AND NO DISCRETE COMMANDS.						
VEHICLE EFFECT-COMMANDS NOT SENT. NO COMMANDS WERE BENT TO THE VEHICLE. ALTHOUGH VEHICLE WAS ACQUIRED AT 140 SECOND S, ATTITUDE AND ANTENNA LOOK ANGLES WERE CHANGING RAPIDLY BECAUSE OF PREMATURE BECO AND ALL SIGNAL WAS LOST AT 154 S ECOND S. WERE IT NOT FOR THE PREMATURE BECO, IT IS BELIEVED GUIDANCE OPERATION WOULD HAVE BEEN PROPER AFTER 140 DECON DS.						
CORRECTIVE ACTION-UNKNOWN.						
GUIDANCE-6E MOD 111B-GND	FTA4516/PZ-302-00-03	COUNTDOWN	3C	12	YES	690448
			100000	-7800	NO	
FAILURE MODE-OUT OF TOLERANCE. MOD 111 GUIDANCE GROUND STATION HAD A PROBLEM IN THEIR DESIGNATE BOARD.						
SYSTEM EFFECT-OPERATION DID NOT START. GUIDANCE GROUND STATION NOT READY TO SUPPORT LOOP TEST DUE TO PROBLEM IN TH						
REMARKS						

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GENERAL DYNAMICS  
CONVAIR DIVISION

DIFFICULTIES REVIEW-GUIDANCE SYSTEM-606

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
EIR DESIGNATE BOARD.					YES	606030
VEHICLE EFFECT-COUNTDOWN DELAYED 10 MINUTES AT T-90.					NO	
CORRECTIVE ACTION-GUIDANCE GROUND STATION CHANGED AND CHECKED OUT DESIGNATE BOARD.			COUNTDOWN 501223	12	YES	606031
GUIDANCE-6E MOD 1116-GRND FTA4516/P2-30E-00-9						
FAILURE MODE-OUT OF TOLERANCE. GROUND STATION COMPUTER NOT SENDING CORRECT OUTPUT FOR TEST 4 AND 5 OF LOOP TEST.						
SYSTEM EFFECT-IMPROPER DISCRETE SIGNALS. GROUND STATION COMPUTER NOT SENDING CORRECT OUTPUT.						
VEHICLE EFFECT-COUNTDOWN DELAYED. DELAY DUE TO THIS PROBLEM ESTIMATED TO BE 42 MINUTES-EXACT TIME UNDETERMINABLE DUE TO OTHER PROBLEMS.						
CORRECTIVE ACTION-UNKNOWN.						
GUIDANCE-6E MOD 1116-GRND 60C/DMR64-051/P3-40E-00-223/1496CO FLIGHT MPLEX			2230 430720	13 294	YES NO	606032
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. POST-FLIGHT REVIEW OF THE GUIDANCE EQUATION COMPUTATIONS INDICATED THAT THE VECO TIME-TO-GO FUNCTION WAS INFLUENCED BY NOISE ASSOCIATED WITH THE RADAR DATA SUPPLIED TO THE COMPUTER. HOWEVER, THE INSERTION VELOCITIES WERE ADEQUATE TO ACCOMPLISH THE MISSION OBJECTIVES.						
SYSTEM EFFECT-MONO.						
VEHICLE EFFECT-PREMATURITY VERNIER CUTOFF. EVALUATION OF THE INSERTION CUTOFF VELOCITY ERROR (-4.0 FEET PER SECOND), REVEALED THAT THE VERNIER SOLO DURATION SHOULD HAVE BEEN 10.5 SECONDS AS OPPOSED TO THE ACTUAL DURATION OF 15.1 SECONDS.						
CORRECTIVE ACTION-OPEN. NOISE FREQUENCIES NOT PRESENTLY FILTERED ADEQUATELY MAY HAVE CAUSED THE EARLY CUTOFF. FURTHER STUDIES OF THE RADAR NOISE MODEL ARE CONTINUING TO DETERMINE POSSIBLE IMPROVEMENTS OF THE FILTERING TECHNIQUES PRINCIPALLY UTILIZED.						
GUIDANCE-6E MOD 1116-GRND 60ARKF64-01172-404-00-284 PULSE BEACON			COUNTDOWN 640414	12 -30	YES NO	606033
FAILURE MODE-FAILED TO OPERATE AT PRESCRIBED TIME. THE TRACK RADAR FAILED TO REGAIN AUTOMATIC MONOPULSE LOCK AFTER SWITCHING FROM CONICAL TO MONO PULSE.						
SYSTEM EFFECT-OPERATION DOES NOT START. TRACK RADAR SYSTEM FAILED TO REGAIN AUTOMATIC MONOPULSE LOCK AFTER SWITCHING FROM CONICAL TO MONOPULSE.						
VEHICLE EFFECT-COUNTDOWN DELAYED. 11 MINUTE HOLD AND 5 MINUTE RECYCLE. ABORT CUTOFF RECEIVED.						
CORRECTIVE ACTION-MONO. PROBLEM ISOLATED TO A RANDOM OCCURRENCE WHEN SWITCHING FROM CONICAL TO MONOPULSE.						

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GENERAL DYNAMICS  
CONVAIR DIVISION

## DIFFICULTIES REVIEW-GUIDANCE SYSTEM-665

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENOR NAME VENDOR PART NO
GUIDANCE-66 MODE 1116-62ND AAB4-0000/PB-401-00-198	COUNTDOWN		1980 #40180	12 -800	NO NO	000016
FAILURE MODE-FAIL DURING OPERATION. THE 180 VOLT POWER SUPPLY IN THE GUIDANCE GROUND STATION FAILED. SYSTEM EFFECT-OPERATION DOES NOT START.						
VEHICLE EFFECT-COUNTDOWN DELAYED. 40 MINUTE HOLD.						
CORRECTIVE ACTION-INVESTIGATE, REPAIR AND REVALIDATE GUIDANCE GROUND STATION.						
GUIDANCE-66 MARK II-GRND GOC/BKFK68-002/L4-701-00-7114	GROUND GUIDANCE RATE SYSTEM	FLIGHT	7114 #40119	2-4 800	YES NO	000017
FAILURE MODE-ERRATIC OPERATION. A -3000 REDUCTION FROM NOMINAL SIGNAL LEVEL OF THE WEST LATERAL RATE STATION RESULTED IN RATE DATA DROPOUTS BETWEEN 800 AND 281 SECONDS.						
SYSTEM EFFECT-ERRATIC OPERATION. BECAUSE OF GROUND SYSTEM MALFUNCTION, DIFFERENTIATED TRACK DATA HAD TO BE USED DURING THE PERIODS OF LATERAL RATE DATA DROPOUTS. IN ADDITION, THE VECO DISCRETE COMMAND MAP GENERATED BY THE COMPUTER LATE-GATE LOGIC RATHER THAN BY THE TIME-TO-GO FUNCTION.						
VEHICLE EFFECT-NONE. ALL MISSION OBJECTIVES WERE SATISFIED.						
CORRECTIVE ACTION-GROUND LATERAL RATE PROBLEM RESOLVED BY 66.						
GUIDANCE-66 MARK II-GRND G0/ADKF68-039614-702-00-7109	RELAY	COUNTDOWN	7109 #41204	2-4 -120	YES NO	000018
FAILURE MODE-FAIL DURING OPERATION - CONFIDENTIAL LIGHT ON THE GROUND CONTROL OFFICERS CONSOLE INDICATED THAT THE SIMULATION EQUIPMENT WAS STILL RADIATING. INDICATION FOUND TO BE FALSE/COUS.						
SYSTEM EFFECT-NONE.						
VEHICLE EFFECT-COUNTDOWN DELAYED. THE COUNTDOWN WAS RECYCLED TO T-8 MINUTES. HOLD TIME WAS 3 MINUTES BECAUSE OF RE-CIRCLE.						
CORRECTIVE ACTION-REPLACED DEFECTIVE RELAY.						
GUIDANCE-66 MARK II-GRND G0/A SEP 84-088 L4-701-00-7108	RELAY	COUNTDOWN	7108 #41204	2-4 -800	YES NO	000019
FAILURE MODE-FAIL DURING OPERATION. TRACK RANGE GATE CIRCUITRY (RELAY 18222SK-1) FOUND DEFECTIVE PRIOR TO TERMINAL COUNT LOOP TEST.						
SYSTEM EFFECT-NONE - PROBLEM FOUND DURING GROUND CHECKS PRIOR TO INTERFACE WITH AIRBORNE SYSTEM.						
VEHICLE EFFECT-COUNTDOWN DELAYED. HOLD CALLED AT T-80 MIN AND LASTED 10 MINUTES.						
CORRECTIVE ACTION-DIP SOLDER BOARD CONTAINING RELAY WAS REPLACED.						

18 JUN 1968

GENERAL DYNAMICS  
CONVAIR DIVISION

## DIFFICULTIES REVIEW-GUIDANCE SYSTEM-6SE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
GUIDANCE-ARMA-6SE	WAE-303/C1-Oscillator-Gravity	COUNTDOWN 1087 6	641110	YES NO	666408	
FAILURE MODE-FAIL DURING OPERATION.						
SYSTEM EFFECT-OPERATION STOPS PREMATURELY. GUIDANCE FAIL INDICATION WAS RECEIVED ON LCC CONSOLE.						
VEHICLE EFFECT-COUNTDOWN ABORTED.						
CORRECTIVE ACTION-GRAVITY OSCILLATOR REPLACED IN ASK DRIVEN LASERS.						
GUIDANCE-ARMA-6SE	63-0478/C1-803-00-66	COUNTDOWN 68E C	630703	YES ARMA NO	666373	
FAILURE MODE-FAILED DURING OPERATION. GUIDANCE FAIL INDICATOR WENT RED DUE TO ASK PROBLEMS.						
SYSTEM EFFECT-ERRATIC OPERATION.						
VEHICLE EFFECT-LAUNCH COUNTDOWN DELAYED.						
CORRECTIVE ACTION-ALTERNATE TARGET WAS INTERMITTENTLY SELECTED.						
GUIDANCE-ARMA-6SE	AD62-018/DAS73/01-803-00-66	COUNTDOWN 68E F	620223	YES NO	666383	
FAILURE MODE-OUT OF TOLERANCE. A GUIDANCE FAULT WAS RECEIVED WHEN THE GUIDANCE SYSTEM FAILED TO ACQUIRE OPTICS. FAILURE CAUSED BY THE BIGHT TUBE BEING DISENGAGED AND NOT CONNECTED TO THE MISSILE.						
SYSTEM EFFECT-IMPROPER ANALOG SIGNALS. GUIDANCE SYSTEM COULD NOT BE FINE ALIGNED DURING THE COUNTDOWN AS COARSE ALIGNMENT HAD NOT BEEN PERFORMED.						
VEHICLE EFFECT-COUNTDOWN ABORTED AND RESCHEDULED.						
CORRECTIVE ACTION-UNKNOWN.						
GUIDANCE-ARMA-6SE	AD62-018/DAS73/01-801-00-66	COUNTDOWN 68C F	620200	YES ARMA NO	666398	
FAILURE MODE-FAIL DURING OPERATION. DURING COUNTDOWN A GUIDANCE FAIL INDICATION WAS RECEIVED AT 9 MIN 42 SEC WHEN THE GUIDANCE SYSTEM FAILED TO BECOME ALIGNED. CAUSED BY AN IMPROPERLY POSITIONED 6SE SWITCH WHICH PREVENTED COARSE ALIGNMENT OF THE GUIDANCE SYSTEM.						
SYSTEM EFFECT-IMPROPER ANALOG SIGNALS.						
VEHICLE EFFECT-COUNTDOWN WAS ABORTED AND RESCHEDULED.						
CORRECTIVE ACTION-UNKNOWN.						
						PAGE 0008

18 JUN 1996

GENERAL DYNAMICS  
CONVAIR DIVISION

## DIFFICULTIES REVIEW-GUIDANCE SYSTEM-GSE

SYSTEM SUB - SYSTEM	TEST REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
GUIDANCE-ARMA-GSE	AD61-0287/DASR/01-BMO-04-84 CALIBRATOR	COMPOSITE-PRO/DPL 24E 810982	F	YES	NO	688420
FAILURE MODE-FAIL DURING OPERATION. FAILURE IN ACCELEROMETER CALIBRATION DRAMER CAUSED GUIDANCE FAIL INDICATION ON LCC.	SYSTEM EFFECT-OPERATION DOES NOT START.  VEHICLE EFFECT-COMPOSITE DELAYED.  CORRECTIVE ACTION-UNKNOWN.	AU61-0247/DASR/01-BSF-03-84 W/RING	COMPOSITE-FID/DPL 24-E 810982	F	YES NO	688427
GUIDANCE-ARMA-GSE	AD61-0287/DASR/01-BSF-03-84 W/RING	COMPOSITE-FID/DPL 24-E 810982	F	YES NO	688420	Failure mode-fail to operate at prescribed time. Guidance ready indication lost on lcc due to broken soldered connection on relay in a.i.c. countdown group.
GUIDANCE-ARMA-GSE	AD61-0287/DASR/01-BSF-03-84 W/RING	COMPOSITE-FID/DPL 24E 810984	F	YES NO	688420	Failure mode-fail to operate at prescribed time. Guidance system ready indication on lcc lost.
GUIDANCE-ARMA-GSE	AEGD-0730/FC-3CO-09-008 PLATFORM AND CONTROL	COMPOSITE-FACTORY 9E 801017	NO NO	NO NO	688428	Failure mode-kinetic operation- redundant gyro axis output indicated approx. 19 percent ibm variations. This condition resulted from a dead frequency generated in the ground loop between the external ac power supply and the output from the inverter.
GUIDANCE-ARMA-GSE	AEGD-0730/FC-3CO-09-008 PLATFORM AND CONTROL	COMPOSITE-FACTORY 9E 801017	NO NO	NO NO	688428	Failure mode-kinetic operation- harmonic beat induced by differences of inverter frequency and ground power frequey not used to power acc.
GUIDANCE-ARMA-GSE	AEGD-0730/FC-3CO-09-008 PLATFORM AND CONTROL	COMPOSITE-FACTORY 9E 801017	NO NO	NO NO	688428	Failure mode-kinetic operation- post composite testing required to determine the cause of beat.
GUIDANCE-ARMA-GSE	AEGD-0730/FC-3CO-09-008 PLATFORM AND CONTROL	COMPOSITE-FACTORY 9E 801017	NO NO	NO NO	688428	Corrective action-engineering change, cic tasks was performed on the gse ground loop.

**HYDRAULIC SYSTEM  
GSE  
DIFFICULTIES REVIEW**

DIFFICULTIES REVIEW HYDRAULIC SYSTEM CSE

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18 JUN 1966

GENERAL DYNAMICS  
CONVAIR DIVISION

DIFFICULTIES REVIEW-HYDRAULIC SYSTEM-68E

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE	SITE	PERI	VENDOR NAME VENDOR PART NO
HYDRAULIC-68E FIRST STAGE	SLV-68-06-1847 TUBING	FAR BT-87078-T	880300	CX13	YES 60/C	NO MIL-T-8848 088864
FAILURE MODE-CONTAMINATION. FOUR SPECIMENS OF TUBING USED IN THE GROUND SUPPORT HYDRAULIC SYSTEM AND OPERATES AT 300 PSI HYDRAULIC PRESSURE WERE FOUND TO BE CORRODED.						
CORRECTIVE ACTION-FAILURE ANALYSIS HAS RESTRICTED TO METALLURICAL EVALUATION OF TUBE MATERIAL AND CHEMICAL ANALYSIS OF TUBE COMPOSITION. FAILURE WAS DUE TO 1. BINE ATMOSPHERE AND SUSCEPTIBILITY OF TYPE 304 CRES TO STRESS CORROSION IN A MARINE ATMOSPHERE. A CHANGE TO -316 CRES WAS PROPOSED TO BD AND WAS NOT APPROVED BECAUSE OF THE FOUR-YEAR LIFE EXPECTANCY OF THESE TUBES AND BECAUSE THESE TUBES ARE INSPECTED AFTER EACH LAUNCHING. NO FURTHER ACTION TO BE TAKEN. THIS ACTION DOCUMENTED IN MEMO OF 12 MAY 1966 FROM RELIABILITY TECHNICAL REQUIREMENTS GROUP.						
HYDRAULIC-68E FIRST STAGE	F7AB35TP8-00-01-0AC8 HAND VALVE, MICROSWITCHES	COMPOSITE-PRO/DPL 880718	1810	868	YES NO	088868
FAILURE MODE-ELECTRICAL OPEN. THE HVU COULD NOT BE OPERATED REMOTELY. THE CAUSE OF THIS FAILURE WAS OPEN WIPER CONTACT ON VALVE VS AND VS MICROSWITCHES.						
SYSTEM EFFECT-OPERATION DOES NOT START. THE TEST WAS RUN WITHOUT BOOSTER HYDRAULICS.						
VEHICLE EFFECT-NONE.						
CORRECTIVE ACTION-HS AND VS MICROSWITCHES WERE ADJUSTED TO MAKE PROPER CONTACT.						
HYDRAULIC-68E FIRST STAGE	FAR-CF-98-300-013	FAR	641200	354	YES LEACH NO 837-68	088867
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. THE HVU RELAY WAS REJECTED BECAUSE THE CONTACTS REPORTEDLY STUCK. FAILURE WAS NOT CONFIRMED.						
CORRECTIVE ACTION-NONE.						
HYDRAULIC-68E FIRST STAGE	FAR-LV-98-20-208-7 BLEED VALVE.	FAR	631826	18	YES APPROVED NO 78301	088868
FAILURE MODE-LEAK EXTERNAL. VALVE WAS REPORTED TO BE LEAKING 1 DROP PER 10 SECONDS HYDRAULIC FLUID AROUND THE VALVE ITEM. LAB TESTING COULD NOT DUPLICATE THIS LEAKAGE RATE; HOWEVER, DISASSEMBLY REVEALED EXCESSIVE WEAR AND SEALING ON THE VALVE PLUNGER AND HOUSING. METALLIC PARTICLES AND FIBERS WERE FOUND ADHERED TO THE O-RINGS.						
CORRECTIVE ACTION-REVISION OF MAINTENANCE SERVICE CHECKOUT SHEETS A400-60 AND A400-284 TO REQUIRE ANNUAL INSPECTION						

19 JUN 1968

GENERAL DYNAMICS  
CONVAIR DIVISION

## DIFFICULTIES REVIEW-HYDRAULIC SYSTEM-GSE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIV DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
HYDRAULIC-GSE FIRST STAGE	LV-9B-10-20FF BLEED VALVE	FAR 87-07384-5	631101	A1	YES APCO NO 88-30814-23	699604
	OF THE BLEED VALVE AND BIGHT TUBE ASSEMBLY PLUMBER AND BORE FOR EXCESSIVE WEAR. CAUSED BY AN INSUFFICIENT O-RING SEALING DESIGN. THE SURFACE FINISH ON THE VALVE HOUSING BORE RESULTED IN SCRATCHING THE MATING O-RING SEALING SURFACES.					
	CORRECTIVE ACTION-CONVAIR RECOMMENDED THAT VENDOR EXPEDITE CURRENTLY PLANNED CHANGE OF INCREASING O-RING SQUEEZE TO ALLEVIATE LEAKAGE.					
HYDRAULIC-GSE FIRST STAGE	2P-9B-30-19SF VALVE ACTUATOR BRUSH	FAR	630981	A1	YES BARBER COLEMAN NO 871C6522	699670
	FAILURE MODE-ELECTRIC OPERATION- VALVE ACTUATOR ACTED SLAUGHTER AND ERATIC. FAILURE WAS DUE TO ONE OF THE MOTOR BRUSHES BEING STUCK IN THE HOUSING AND NOT ALLOWING THE BRUSH SPRING TO KEEP IT AGAINST THE COMMUTATOR. THE BRUSH STUCK IN THE HOUSING DUE TO TWO PROTRUSIONS OF FOREIGN MATERIAL.					
	CORRECTIVE ACTION-VENDOR HAS ENROLLED PERSONNEL IN THE NASA SOLDIERING AND MAINTENANCE SCHOOL FOR INSTRUCTORS. RANDO IN QUALITY CONTROL AUDITS ARE BEING CONDUCTED.					
HYDRAULIC-GSE FIRST STAGE	A0463-Q051/A1-408-00-100	FLIGHT 630226	1600	A1	YES -104-65 MD	699480
	FAILURE MODE-FAILED DURING OPERATION. THE HPU FAILED TO PROPERLY EVACUATE OIL FROM THE BOOSTER AND SUSTAINER HYDRAULIC SYSTEMS DURING THE COMMIT SEQUENCE AS INDICATED BY TEST DATA.					
	SYSTEM EFFECT-THE OIL EVACUATION OPERATION WAS NOT PERFORMED.					
	VEHICLE EFFECT-NONE.					
	CORRECTIVE ACTION-CAUSE OF FAILURE IS UNKNOWN. THE HPU WAS CHECKED OUT AFTER THE FLIGHT AND NO MALFUNCTIONS WERE FOUND.					
HYDRAULIC-GSE FIRST STAGE	FAR-B-50-052 SERVO ACTUATOR MOTOR	FAR	610707	A1	YES BARBER COLEMAN NO 871C6522	699604
	FAILURE MODE-FAIL DURING OPERATION. THE MOTOR USED TO ACTUATE BYPASS VALVE NO 13 OF THE HPU FAILED DUE TO ININTERMITTENT CONTACT OF ONE BRUSH BECAUSE OF ARCING.					

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SCENICAL DYNAMIC

REVIEW-ARTICLE: HYDRAULIC SYSTEMS

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DISPATCHER PART NUMBER	DATA BOUNCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
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CORRECTIVE ACTION - INFORMED VENDOR OR DISCREPANCY FOR CORRECTIVE ACTION PER VENDOR CORRECTIVE ACTION REQUEST NO. 517

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## COMBOL-1 DATACARD

PISTON POSITION  
PRESSURE SWITCH

REASONABLE COMPENSATION TO THE INVESTIGATOR OR THE MICROBIONIC UNIT.

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NO CONTROL  
SWITCH  
SWITCH  
SWITCH

LAB TESTING INDICATED THAT THE SWITCH ENCLOSURE WAS NOT MANUFACTURED TO PROPER DIMENSIONAL TOLERANCES.

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YES DIAPLEX DIV.

PREDICTION EQUATION

TESTS-1  
FAILURE MODE-PREMATURER OPERATION. THE SWITCH LOCATED IN THE HPU AND CONTROLS THE NORMAL 2000 PSI LIGHT ON THE HYDRAULIC SYSTEM. A TEST WAS CONDUCTED ON THE SYSTEM AND NO APPARENT LEAKING OR FAILING WAS CONFIRMED.

1

CORRECTIVE ACTION-NONE		REASON	CONTINUOUS	STOP	START	END
		1100-00000000-11-01-01				

**THE BOOSTER HYDRAULIC PUMP-UP AND DROP-OUT.** The absence of a supplemental relay in the landline would pick-up and drop-out, failure mode-out of tolerance. The pump-up and drop-out was manifested mostly during the initial start-up of the system.

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THE PROGRAMME TO RESET  
THE CIRCUITRY. CAN THE

CENTRAL GOVERNMENT

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דרכו של מילון עברי-נורווגי 681-680

THE INFLUENCE OF THE MAMMALIAN CANNIBAL ON THE MAMMALIAN COMMUNITY

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DRAFT - 1997-05-15 - 15

**INTERMITTENT OPERATION OF THE BOOSTER HYDRAULIC PRESSURE RELEASE VALVE**

THE FUNCTIONAL CLASS INDEXES HAVE BEEN COMPLETED.

THE JOURNAL OF CLIMATE

HYDRAULIC PRESSURE SWITCH  
FLIGHT STAGE  
FIA4000P3-481-00-03  
NO NO YES YES

RELEASING FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. SINHATED RELEASE WAS NOT ACHIEVED DUE TO LACK OF AN INTERNAL HYDRAULIC SIGNAL-TO THE FUNCTION-BEAT RELEASE CIRCUIT. PRIOR TO THE TEST THE GROUND HYDRAULIC SWITCHES WERE SET AT 2800 PSI. POST-TEST INVESTIGATION REVEALED THAT THE SUB. SWITCH PICKED UP AT 2800 PSI AND THE BOOSTER SWITCH PICKED UP AT 2250 PSI. THE FAILURE TO RECEIVE AN INTERNAL HYDRAULICS READY WAS ATTRIBUTED TO ONE OR BOTH SWITCHES.

CORRECTIVE ACTION—BOTH SWITCHES WERE IRAD AND REPLACED WITH SWITCHES OF THE TYPE USED PREVIOUSLY AT ETR. THE HYDRAULIC SWITCH USED DURING THIS TEST WAS A NEW TYPE USED FOR FIRST TIME AND WAS LOCATED IN THE SPAGUE CONTROL UNIT. REPAIRS TO THE SPAGUE CONTROL UNIT WERE MADE AND THE SYSTEM TESTED. THE HYDRAULIC-PNEUMATIC TANKS ARE OF THE TYPE (200-10000) USED PREVIOUSLY AND ARE LOCATED IN THE HYDRAULIC-PNEUMATIC TANKS.

CONTRACT-#FACT  
P#1450000/P#1450000-000-000-000  
WILSON JAMES RICHARDSON  
CITY OF BOSTON

FAILURE MODE-CUT OF TOLERANCE. IMPROPER SETTING OF HYDRAULIC PRESSURE SWITCH INHIBITED THE RELEASE SIGNAL.

18 JUN 1986

GENERAL DYNAMICS  
CONVAIR DIVISION

## DIFFICULTICS REVIEW-HYDRAULIC SYSTEM-686

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SIZE	PRI	VENDOR NAME PART NO
CUTOFF SIGNAL - VEHICLE EFFECT-NONE.	CORRECTIVE ACTION-THE PRESSURE SWITCH WAS RESET TO THE CORRECT SETTING.					6860421
HYDRAULIC-686 FIRST STAGE	F1A4323/P1-U14-00-08 SENSOR-TEMPERATURE COMPENSATOR	COUNTDOWN 861113	PB 861113	41 -900	YES NO	6860422
	FAILURE MODE-OUT OF SPECIFICATION. BOOSTER GROUND HYDRAULIC PRESSURE AT 8792 PSI. RUNG PMS REQUIRED. SYSTEM EFFECT-OPERATION TOO HIGH.					
VEHICLE EFFECT-COUNTDOWN DELAYED. 5 MINUTES HOLD.	CORRECTIVE ACTION-TEMPERATURE COMPENSATOR RESET.					
HYDRAULIC-686 FIRST STAGE	F1A4323/P1-204-00-08 SENSOR-TEMPERATURE COMPENSATOR	COUNTDOWN 861112	PB 861112	41 -900	YES NO	6860421
	FAILURE MODE-OUT OF SPECIFICATION. 900 PSI AT BOOSTER HYDRAULIC TRAILER SUPPLY. 2000 PSI REQUIRED. PROBLEM WAS DUE TO EARATIC OPERATION OF TEMPERATURE COMPENSATOR IN BOOSTER UNIT.					
SYSTEM EFFECT-OPERATION TOO LOW.	CORRECTIVE ACTION-TEMPERATURE COMPENSATOR RESET.					
VEHICLE EFFECT-COUNTDOWN DELAYED. 5 MINUTES HOLD.	CORRECTIVE ACTION-TEMPERATURE COMPENSATOR RESET.					
HYDRAULIC-686 SECOND STAGE	PAB-CT-98-30-012 PUMP SEAL	PAB 861122	620387 86A	86A NO	YES SPRAGUE NO 76237-1	68604
	FAILURE MODE-EXTERNAL LEAK. PUMP LEAKAGE WAS DETECTED AT THE SHAFT SEAL. FAILURE WAS CAUSED BY EXCESSIVE OPERATING TEMPERATURE DUE TO POOR SEAL MATERIAL AND INSUFFICIENT SEAL DESIGN.					
	CORRECTIVE ACTION-ECP 4230 APPROVED TO CHANGE SHAFT SEALS ON BOTH FIRST AND SECOND STAGE HYDRAULIC PUMPS TO A MECHA NICAL TYPE SEAL. RELIABILITY CONCERN, THAT HEARING INITIATED ACTION TO HAVE VENDOR TAKE ACTION WITH THE MANUFACTURER. SECTOR. TO IMPROVE AC AND PREVENT INADEQUATE HOUSING ASSEMBLIES DUE TO MISSING GASKETS.					
HYDRAULIC-686 SECOND STAGE	AER-A-1104/92-00-00-02 PRESSURE SWITCH	COUNTDOWN 861122	PB 861122	41 -900	NO YES	68604
	FAILURE MODE-FAIL TO OPERATE AT PRESETTED TIME. SUSTAINING HYDRAULIC PRESSURE SWITCH FAILED TO ACTUATE DURING MAINS TAKES.					

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18 JUN 1986

GENERAL DYNAMICS  
COVAIR DIVISION

DIFFICULTIES REVIEW-HYDRAULIC SYSTEM-686

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PAL OTH	VENDOR NAME PART NO
SYSTEM EFFECT-OPERATION STOPS PREMATURELY. ENGINES CUT-OFF BY FAILURE TIMER.						
VEHICLE EFFECT-COUNTDOWN ABORTED AND RESCHEDULED.						
CORRECTIVE ACTION-UNKNOWN.						
HYDRAULIC-686 PNEUMATIC PRESSURIZATION	FARNE-90-AD-1RS-C SOLENOID VALVE	FAR 023502	023502	12	NO SPRAGUE ENGR. NO 76531	000003
FAILURE MODE-FAIL DURING OPERATION. THE SOLENOID VALVE WAS BURNED OUT DUE TO APPLICATION OF EXCESSIVE CURRENT.						
CORRECTIVE ACTION-FAILURE ANALYSIS WAS NOT PERFORMED.						
HYDRAULIC-686 PNEUMATIC PRESSURIZATION	FAR-CT-98-50-004 SOLENOID OPERATED VALVE	FAR 010618	02A	YES SPRAGUE ENGINE NO SPRAGUE CORP. 76231	000003	000003
FAILURE MODE-ELECTRICAL SHORT. THE VALVE, IN THE PNEUMATIC PRESSURIZATION LINE TO THE HPU RESERVOIR FAILED WHEN LINE PRESSURE WAS 140 PSI AND SHOULD HAVE CLOSED BY AN INTERLOCKED PRESSURE SWITCH AT 125 PSI. FAILURE WAS CONFIRMED AND WAS DUE TO AN ELECTRICAL SHORT CAUSED BY OVERHEATING. THE OVERHEATING RESULTED FROM BOTH THE ACTUATING COIL AND THE HOLDING COIL BEING ENERGIZED FOR AN ABnormally LONG PERIOD OF TIME. THE FINITE CAUSE OF FAILURE COULD NOT BE DETERMINED.						
CORRECTIVE ACTION-ED/C REQUESTED ALL BASES SEND ADDITIONAL FAILED VALVES FOR ANALYSIS. NO CORRECTIVE ACTION TAKEN SINCE CAUSE OF FAILURE COULD NOT BE DETERMINED.						
HYDRAULIC-686 PNEUMATIC PRESSURIZATION	FAR96-03-014 REGULATOR	FAR 02-0550	000024	12	VER MORGREN NO PART#	000000
FAILURE MODE-STRUCTURAL. THE REGULATOR WHICH SUPPLIES PNEUMATIC HEAD PRESSURE TO THE HYDRAULIC TANK WAS FOUND TO HAVE ITS BRASS DIAPHRAGM BENTURED AND RIPPED AND THE VALVE SEAT DAMAGED. WITH A NEW DIAPHRAGM INSTALLED CONTINUOUS LEAKAGE WAS NOTED PASS THE VALVE SEAT WHICH COULD HAVE CAUSED THE REGULATOR TO SEE EXCESSIVE PRESSURE ON THE DOWNSTREAM SIDE THUS BENTURING THE DIAPHRAGM. VALVE SEAT DAMAGE WAS PROBABLY CAUSED BY HEAVY VIBRATION BEING TRAPPED BETWEEN THE UNLOADED REGULATOR AND THE DOWNSTREAM VENT VALVE DURING UNDERSHOT WHICH WOULD CAUSE EXCESSIVE LOADINGS ON THE VALVE SEAT.						
CORRECTIVE ACTION-INITIATE NECESSARY PROCEDURES TO PREVENT EXCESSIVE GAS PRESSURES FROM BEING TRAPPED OR LEAKING INTO THE DOWNSTREAM SIDE OF THE REGULATOR AT ANY TIME DURING OPERATION OR SHUTDOWN.						

**INSTRUMENTATION SYSTEM**

**GSE**

**DIFFICULTIES REVIEW**

DIFFICULTIES REVIEW INSTRUMENTATION - CSE  
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18 JUN 1968

## COMVAIR DIVISION

## DIFFICULTIES REVIEW-INSTRUMENTATION SYSTEM-GAE

SYSTEM SUB-SYSTEM	TEST/REFAT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	BITE TIME DIF	PRI OTH	VENDOR NAME PART NO
INSTRUMENTATION-GAE TELEMETRY CONTROL AND LOGI LANDLINE TRAILING WIRE UMBILICAL C	A063-0084/02-001-00-03	FLIGHT 630381	63F WTR MINUS 0. NO S	YES 608478	YES 608	YES SOC MINUS 0. NO S

FAILURE MODE-PREMATURE OPERATION. THE TRAILING WIRE LANDLINE UMBILICAL WAS PREMATURELY EJECTED 0.1 SECONDS PRIOR TO 1 INCH MOTION. POSSIBLY CAUSED BY EJECT MECHANISM PARTIALLY ACTIVATED PRIOR TO LAUNCH AND VIBRATIONS AT ENGINE IGNITION CAUSING MECHANISM TO RELEASE THE UMBILICAL.

SYSTEM EFFECT-IMPROPER ANALOG SIGNALS. DATA FROM 70 PARAMETERS MADE VIA THE TRAILING WIRE UMBILICAL WAS LOST DURING A CRITICAL PERIOD.

VEHICLE EFFECT-NONE.

CORRECTIVE ACTION-UNK NORM.

INSTRUMENTATION-GAE TELEMETRY CONTROL AND LOGI UMBILICAL CONNECTOR C	A-38-40-3143-F P-4003	FAR 7-19718-601	60000 NO TION	61000 YES PACIFIC AUTOMA	61000 NO TION	61000 YES PACIFIC AUTOMA

FAILURE MODE-FAIL DURING OPERATION. THE WIRE FROM PIN-A OF PLUG P-4003 SHOULD HAVE BEEN SOLDERED TO PIN A-31 OF PLUG P-4003. INSTEAD IT WAS SOLDERED TO PIN A-32. THE WIRING ERROR OCCURRED DURING MANUFACTURE OF THE UMBILICAL ADAPTER

CORRECTIVE ACTION-THE VENDOR INCREASED INSPECTION, INCLUDING 100 PERCENT CONTINUITY CHECKS DURING AND AT THE COMPLETION OF ASSEMBLY.

INSTRUMENTATION-GAE TELEMETRY CONTROL AND LOGI PROPELLANT LOADING INDICATOR C	FAR-CT-0B-53-001	FAR	61000 NO	61000 YES TRANS-BONICS HO 114352	61000 NO	61000 YES TRANS-BONICS HO 114352

FAILURE MODE-OUT OF TOLERANCE. THREE-LEVEL-INDICATING METER SHOWED 100 PERCENT ERROR BETWEEN DIALS 5000 AND 6000 ON THE RATIO TRANSFORMER T-203. AN OPEN IN THE CIRCUIT BETWEEN POSITIONS 5 AND 6 WAS CAUSED BY A COLD BOLTER JOINT. IT WAS ALSO DISCOVERED THAT THE INDICATOR COULD NOT BE ZEROED MECHANICALLY.

CORRECTIVE ACTION-THE METER WAS REMODELED BY THE VENDOR.

INSTRUMENTATION-GAE TELEMETRY CCHTOL AND LOGI AM-FH TAPE RECORDER C	AEGO-0359/P2-102-00-12	COUNTDOWN	32D 600609	12 -10	NO YES	NO AMPLEX

FAILURE MODE-FAILED DURING OPERATION. FH AND AN LANDLINE RECORDERS STOPPED RUNNING CAUSING LOSS OF LANDLINE AND FM DATA. TWO RECORDERS TRIP CIRCUIT BREAKER.

PAGE 0001

19 Jun 1966

## DIFFICULTIES REVIEW-INSTRUMENTATION SYSTEM-66E

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIR DATA SOURCE PART NUMBER	VEHICLE DATE DIR	SITE TIME DIR	PAS ON VENDOR PART NO	VENDOR NAME
						66E645
SYSTEM EFFECT-OPERATION STOPS PREMATURELY. THE RECORDING OF AN AND FM DATA HAS STOPPED DUE TO FAILURE OF THE AM-FM RECORDER.						
VEHICLE EFFECT-COUNTDOWN DELAYED 10 MINUTES. 8 MINUTE HOLD. 8 MINUTE RECYCLE.						
CORRECTIVE ACTION-OPERATE WITH ONE RECORDER.						
INSTRUMENTATION-66E AEG0-0518/P4-408-00-82 TELEMETRY CONTROL AND LOGI AUDIO WARNING AMPLIFIER C	COUNTDOWN	AEG0018	14	YES	-4140	NO
FAILURE MODE-FAIL DURING OPERATION.						
SYSTEM EFFECT-NONE.						
VEHICLE EFFECT-COUNTDOWN DELAYED 15 MINUTES.						
CORRECTIVE ACTION-REPLACED AMA.						
INSTRUMENTATION-66E EM1507A-403-00-10 TELEMETRY CONTROL AND LOGI CONNECTOR UMBILICAL P4001 C	PRF	100	14	YES	560001	-1000
FAILURE MODE-CONTAMINATION. PLATING HOLD FOR INSTALLING SEARCHLIGHTS AND REPLACING A LEAKING HYDRAULIC LINE ON A HELIUM COMPRESSOR. WATER WAS FOUND IN UMBILICAL CONNECTOR P4001.						
SYSTEM EFFECT-IMPROPER ANALOG SIGNAL. INSTRUMENTATION LANDLINE SIGNALS FOR 62 TURBINE INLET TEMPERATURE WERE INCORRECT DUE TO WATER IN THE UMBILICAL CONNECTOR. AN EARLIER INCIDENT INVOLVING THE SAME MEASUREMENT WAS ATTRIBUTED TO A FAULTY INSTRUMENTATION AUTOMATIC CALIBRATOR.						
VEHICLE EFFECT-COUNTDOWN DELAYED. THE HOLD HAS EXTENDED TO A TOTAL OF 171 MINUTES WHILE THE WATER WAS REMOVED FROM THE UMBILICAL PLUG.						
CORRECTIVE ACTION-THE PLUG WAS DRIED OUT WITH GNE.						
INSTRUMENTATION-66E FT42029/P4-802-0R-6 TELEMETRY CONTROL AND LOGI LIGHT C	COUNTDOWN	60	COMPLEX	YES	560011	14
FAILURE MODE-FAIL TO OPERATE AT SPECIFIED TIME. GYRO IMAGE LIGHT ON TELEMETRY PANEL FAILED TO LIGHT. ELEMENTARY 1 (INSTRUMENTATION ERROR)						
SYSTEM EFFECT-OPERATION DOES NOT START. IT WAS DECIDED TO LAUNCH WITHOUT GYROS INSTRUMENTATION.						
VEHICLE EFFECT-COUNTDOWN DELAYED. 15 MINUTE HOLD. 8 MINUTE RECYCLE LOSS.						

19 JUN 1966

## DIFFICULTIES REVIEW-INSTRUMENTATION STATEMENT

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	OF/DATA SOURCE PART NUMBER	VEHICLE DATE OFF TIME OFH	SITE DIF	PRI OTH	VENDOR NAME PART NO
INSTRUMENTATION-6SE TELEMETRY CONTROL AND LOGI HARNESS C	CORRECTIVE ACTION-SYRO UNCASED LIGHT WAS JUMPERED.		COUNTDOWN 88603	16A -0000	YES NO	090339
	FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. GROUND VIRMING WAS REVERSED CAUSING ERRONEOUS GROUND LOG START TANK PRESSURE INDICATIONS.					
	SYSTEM EFFECT-INTEGRATED ANALOG SIGNAL. WIRING FROM AROUND LOG START TANK PRESSURE TRANSDUCER WAS REVERSED, GIVING ERROMEOUS PRESSURE INDICATION.					
	VEHICLE EFFECT-COUNTDOWN DELAYED. 20 MINUTES HOLD.					
	CORRECTIVE ACTION-CORRECTED WIRING ERROR.					
INSTRUMENTATION-6SE TRANSDUCERS	ESC4784 PRESSURE TRANSDUCER	UTP-PET 69-01003-19	651122 69-01003-19	60/C	YES SERVONIC NO 2003-1133	090339
	FAILURE MODE-OUT OF SPECIFICATION. SIX UNITS WERE REJECTED WHEN THEY HAD OUT OF TOLERANCE SPIKING DURING VIBRATION TESTING. THE SPECIFIED VIBRATION ERROR BAND IS PLUS OR MINUS 2.5 PERCENT.					
	CORRECTIVE ACTION-NONE. GDC RECOMMENDED ACCEPTANCE OF THE TRANSDUCERS REPRESENTED BY THESE SPECIMENS VIA TMX TO S&D DATED 24 NOVEMBER 1965.					
INSTRUMENTATION-6SE TRANSDUCERS	68C5583-1 PRESSURE TRANSDUCER	UTP-PET 69-01003-18	651101 69-01003-18	60/C NO 2004206303	YES BOURNS NO 2004206303	090339
	FAILURE MODE-ERRATIC OPERATION. DURING THE X-AXIS VIBRATION AT 60 PSIA, THE OUTPUT HAD NEGATIVE SPIKES OF 6 PERCENT AT 1800 CPS WITH INCREASING VIBRATION FREQUENCY. SIMILAR SPIKES WERE OBSERVED AT 1000 AND 1600 CPS WITH DECREASING VIBRATION FREQUENCY. SPIKES OF PLUS OR MINUS 2.5 PERCENT ARE ALLOWED. THE TRANSDUCER WAS RETESTED AT BOURNS, AND THE FAILURE COULD NOT BE CONFIRMED. THE SPIKING MAY HAVE BEEN CAUSED BY EXCESSIVE PLAY IN THE TRANSDUCER BEARINGS.					
	CORRECTIVE ACTION-SPECIFICATION 87-01448-7 WAS CLARIFIED PER CIC 3897. CONDUCT VIBRATION TEST USING CAPACITOR PER CIC 3897.					
INSTRUMENTATION-6SE TRANSDUCERS	FAR-CT-98-550-048 PRESSURE TRANSDUCER	FAR 69-01028-023	69101A 69-01028-023	60/C NO 4-591-7236	YES EDCLIFF NO 4-591-7236	09101A 69-01028-023
	FAILURE MODE-ELECTRICAL OPEN. HEATER DUCT PRESSURE INSTRUMENTATION WAS INDICATING TWICE THE ACTUAL SYSTEM PRESSURE ANALYSIS CONFIRMED THE FAILURE AND ISOLATED THE TROUBLE TO AN OPEN COIL IN THE PRESSURE HEAD. CIRCUITS, TERMINALS AND CONNECTIONS WERE SATISFACTORY. THE BREAK IN THE COIL WIRE HAVING BEEN THE RESULT OF HIGH STRIKES WHEN THE COIL WAS IN					

DIGITAL CULTURES IN EDUCATION 11

TEST/REPORT NUMBER FAILED COMPONENT NAME	PART NUMBER	DATE DIF TIME DIF	ON	VENDOR PART NO
SYSTEM SUB-SYSTEM	DATA SOURCE	VEHICLE SITE	PR	VENOR NAME
SUS-1815				

**CORRECTIVE ACTION-6/D RECOMMEND THAT THE VENDOR REVIEW MANUFACTURING PROCEDURES TO PRECLUDE MIXING OF WIRE**

INSTRUMENTATION-001  
SUBCODES  
FAR-CT-02-13-003  
TEMPERATURE TRANSDUCER  
P/N 01644-288W  
000023  
ZIN/RGA  
YES TENTECH  
NO 1501-0  
699523

FAILURE MODE-CONTAMINATION. DURING AN ELECTRICAL CHECK, A LOW INSULATION RESISTANCE WAS FOUND. TESTS IN FAILURE ANALYSIS PRODUCED LOW RESISTANCE ONLY WHEN THE PART WAS SUBJECTED TO A HIGH MOISTURE CONTENT ENVIRONMENT. AN OILY FILM FOUND ON THE CONNECTOR BASE ACTED LIKE A WETTING AGENT WHICH COULD DEVELOP MOISTURE PATHS IN A HUMID ENVIRONMENT. HOWEVER, THERE WAS NO EVIDENCE OF MOISTURE IN THE CONNECTOR.

**CORRECTIVE ACTION-IT WAS RECOMMENDED THAT OTHER TEMP PROBE CONNECTORS BE INSPECTED FOR WETTING AGENT FILM, AND THAT THE CONNECTOR BE PROTECTED FROM MOISTURE IF EXPOSED TO A HIGH HUMIDITY ENVIRONMENT.**

INSTRUMENTATION-63E  
 TRANSDUCERS FAR ETR/SSA YES ENCLIFF  
 FAR-CT-98-510-US0  
 PRESSURE TRANSDUCER  
 6507R1 6507R2 NO 4-331-1-6074  
 39-SIDES-27  
 690805

FALLURE MODE-ELECTRICAL. SHORT. DURING INITIAL ELECTRICAL CHECKOUT, A SHORT WAS DISCOVERED BETWEEN THE CIRCUIT GROUND PIN C AND CASE GROUND PIN D. THIS TRANSDUCER REQUIRES POD COOLING DUCT PRESSURE. WHEN THE UNIT WAS DISASSEMBLED IT WAS DISCOVERED THAT THE CIRCUIT GROUND TERMINAL PROTRUDED ABOVE THE POTTING COMPOUND AND HAD BROKEN THROUGH THE PAINT ON THE COVER. MAINTENANCE WAS REQUIRED TO REPAIR THE CIRCUIT BOARD.

**CORRECTIVE ACTION - IT WAS RECOMMENDED THAT THE VENON INSTALL INSULATION SHEETS BEneath THE COVERS OF THESE TRANSFORMERS. EACH SHEET IS 12' X 12' X 1/2".**

INSTRUMENTATION--68E  
 TRANSDUCERS  
 ELV-80-35-514-C  
 TRANSDUCER  
 FAR  
 7-01720-2  
 640710 W.R.  
 NO CEC  
 CN  
 690314

FAILURE MODE-ELECTRICAL OPEN. THE UNIT FAILED WHEN IT WAS FOUND TO BE ELECTRICALLY OPEN. THE ANALYSIS WAS CANCELLED.  
2V TUX VANSAN 7-28-270. STATING THAT INCORRECT Voltages WERE APPLIED TO THE TRANSDUCER.

CONNECTIVE AFFINITY

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GENERAL DYNAMICS  
CONVAIR DIVISION

18 JUN 1968

DIFFICULTIES REVIEW-INSTRUMENTATION SYSTEM-SSE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	OIF DATA SOURCE PART NUMBER	VEHICLE DATE DIS	SITE TIME DIS	PAS	VEHICLE NAME VENDOR PART NO
INSTRUMENTATION-SSE TRANSDUCERS	FAR-LY-98-148-F PRESSURE TRANSDUCER	FAR 87-02948-1	640906	STR/13	YES	COLVIN NO 493-B-6-758 690714

FAILURE MODE-OUT OF EXPECTED TEST VALUE. THIS IS A LANDLINES TRANSDUCER MEASURING LOW STORAGE TANK LIQUID LEVEL. IT REPORTEDLY FAILED DUE TO LEAKAGE. HOWEVER, PERSONNEL STATED IT HAD BEEN OVERPRESSURIZED WHEN A VALVE TO THE LOW PRESSURE PORT WAS CLOSED. NO LEAKAGE WAS FOUND, BUT X-RAYS SHOWED THE WIPER ARM IN THE WRONG POSITION FOR A NO-LOAD CONDITION, USUALLY THE RESULT OF OVERLOADING.

CORRECTIVE ACTION-THE LEAKAGE FAILURE WAS NOT CONFIRMED. OVERPRESSURIZATION WAS COMPAINED. TO PREVENT RECURRENT FAILURE, VALVES TO THE HIGH AND LOW PRESSURE SIDES ARE NOW SAFETY WIRED OPEN AND TAILED TO WARN PERSONNEL TO KEEP THE VALVES OPEN.

INSTRUMENTATION-SSE TRANSDUCERS	A-98-14-203-F TRANSDUCER-PRESSURE	FAR 87-01981-1	631202	FACTORY NO PSSD425	TEB DATA SENSORS 690706

FAILURE MODE-LEAK OF REFERENCE PRESSURE FROM TRANSDUCER RESULTED IN ERRATIC AND REDUCED OUTPUT. LEAK DUE TO MISALIGNED SCREW HOLES RESULTING IN LEAKAGE UNDER THE GASKET.

CORRECTIVE ACTION-VENDOR ADVISED OF FAILURE AND REQUESTED TO CHECK DIMENSIONS USED FOR SCREW HOLE MOUNTINGS. ALSO REQUESTED TO IMPROVE QUALITY CONTROL.

INSTRUMENTATION-SSE TRANSDUCERS	LY-9D-54-237-F PRESSURE TRANSDUCER	FAR 87-03850-180	631202	E-3	NO CONSOLIDATED E 690814

FAILURE MODE-ELECTRICAL OPEN. THE UNIT EXHIBITED A HIGH OUTPUT OF 3 VOLTS DC, WHEREAS 1.3 VOLTS DC IS CALLED FOR. THE FAILURE RESULTED FROM AN OVERVOLTAGE BEING APPLIED TO THE TRANSDUCER, BURNING OPEN THE TOP WIRE OF THE BRIDGE CIRCUIT.

CORRECTIVE ACTION-SSE PERSONNEL WERE INFORMED OF THE FAILURE.

INSTRUMENTATION-SSE TRANSDUCERS	FAR-CT-68-40-037? TRANSDUCER	FAR 87-75000-435	1800	ETRISSA YES HUMPHREY NO RPOI-G008-1	690506

FAILURE MODE-OUT OF EXPECTED TEST VALUE. THE POSITION TRANSDUCER WHICH INDICATES THE POSITION OF THE RETRACTABLE LANDLINES REPORTEDLY FAILED AS A RESULT OF NON-LINEAR OUTPUT. HOWEVER, CORROSION WAS PRESENT ON THE INSIDE SURFACES OF THE END PLUGS BUT WAS NOT THE CAUSE OF THE REPORTED FAILURE.

CORRECTIVE ACTION-RECOMMEND REPLACING TRANSDUCER WITH A TRANSDUCER HAVING SEALS AT EACH END OF THE CASE.

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GENERAL DYNAMICS

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OFFICIAL REVIEW-INSTRUMENTATION SYSTEM - 98E

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	FRI OTH	VENOR NAME VENDOR PART NO
INSTRUMENTATION-Q8E	YAN-CT-88-93-031 TRANSCON TRACOOLFR TIRE	FAR	116D	EIR/36A	NO CEC	NO 4-326-0214
			87-0119-1	659607		

FAILURE MODE-EXTERNAL LEAK. AT 1000 PSIG THE UNIT LEAKED HELIUM AT THE TWO INCH CONNECTION TO THE TRANSDUCER BOOT. ON DISASSEMBLY REVEALED THAT THE METAL SEAL BETWEEN THE BODY AND THE TUBING ADAPTER HAD BEEN FLATTENED OUT, PROBABLY BY OVERTIGHTNING.

CORRECTIVE ACTION-TX BANCAP 7-552 DATED 030703 REQUESTED THAT THE AFFECTED SITE PERSONNEL BE INFORMED OF THE CONSEQUENCES OF IMPROPER TIGHTENING.

CONNECT WITH THE CONNECTIVE TISSUE OF THE FUTURE.

FAILURE MODE-STRUCTURAL. THE TRANSDUCER USED TO MONITOR HELIUM PRESSURE FROM THE BOTTLES INDICATED 1800 PSI WHEN AC TUAL PRESSURE WAS 3800 PSI. THE BOURBON TUBE FAILED WHEN THE TRANSDUCER WAS AT 3600 PSI. AS THE PRESSURE BUILT UP BETWEEN THE TRANSDUCERS AND THE CASE, IT STARTED TO EQUALIZE AND THE RESISTANCE STARTED DROPPING, THUS GIVING A FALSE READING. THE LEAK WAS IN THE UPPER BRAZED END OF THE TUBE.

COMBINE THE BOURBON TUBE BRAZING.

INSTRUMENTATION-68E AZN-27-318/FC-4C0-01A-16 COMPOSITE-FACTORY 169 NO ACUSTICA  
TELEMEASURES

FAILURE WORK-OUT OF TOLERANCE. TRANSDUCER ANGULAR DISPLACEMENT DIAL READINGS WERE OUT OF TOLERANCE DUE TO A LOOSE VIRE IN THE ACQUISTICA TEST EQUIPMENT (CASE).

18 JUN 1986

GENERAL Dynamics  
Convair Division

## DIFFICULTIES REVIEW-INSTRUMENTATION SYSTEM-GSE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
	CORRECTIVE ACTION-LOOSE WIRE IN ACOUSTICA ARE RESOLVED.					699910
INSTRUMENTATION-GSE TRANSDUCERS	FTAZ280/PE-1HH-01-10 TRANSDUCER-LANDLINE	COMPOSITE-PRO/DPL 671119	10A -37	ETR/12 INC	YES	699910
	FAILURE MODE-OUT OF TOLERANCE. THE WRONG TRANSDUCER HAD BEEN INSTALLED TO MEASURE THE DELTA TEMPERATURE ACROSS THE LOG FLUOMETER.					
	SYSTEM EFFECT-IMPROPER ANALOG SIGNALS. THE DELTA TEMPERATURE ACROSS THE LOG FLUOMETER WAS INDICATED AS BEING EXCESSIVE.					
	VEHICLE EFFECT-COMPONENT DELAYED. THERE WERE TWO HOLDS AND TWO RECYCLES. THE HOLDS WERE CALLED FOR PRESURIZATION AND THIS PROBLEM OCCURRED DURING THE HOLDS. THE TOTAL HOLD AND RECYCLE TIME WAS APPROXIMATELY 25 MINUTES.					
	CORRECTIVE ACTION-THE TRANSDUCER HAS BEEN REPLACED WITH THE CORRECT ITEM.					
INSTRUMENTATION-GSE TELEMETRY POWER CONTROL	FAR-CT-SR-530-073 HARNESS, DISTRIBUTION	FAR 55-17320-063	G50312 55	ETR/36A -36	YES NO	699920
	FAILURE MODE-ELECTRICAL SHORT. A CONTINUITY CHECK DURING VALIDATION GTP-LL-1000 REVEALED A SHORT BETWEEN PINS AT HARNESS CONNECTOR JT. THE SHORT WAS CAUSED BY A HOT SOLDERED SHIELD MELTING THE INSULATION AND CONTACTING THE CONDUCTOR PIN(S).					
	CORRECTIVE ACTION-THE FAILURE WAS CONFIRMED. MANUFACTURING PERSONNEL WERE CAUTIONED AGAINST PRESSING HOT SOLDERED WIRE AGAINST INSULATION. INSPECTION PERSONNEL SHOULD EXAMINE SOLDERED CONNECTORS BEFORE POTTING.					
INSTRUMENTATION-GSE TELEMETRY POWER CONTROL	AX63-0003-1300/PC-CO-02-0004-022 SWITCH-RELAY	COMPOSITE-FACTORY 630121	1300 NO	FACTORY NO	NO	6999476
	FAILURE MODE-FAIL DURING OPERATION. TELEMETRY RECORDINGS INDICATED LOSS OF POWER DURING TELEMETRY SYSTEM POWER CHANNEL. THE POWER DROPOUT WAS CAUSED BY ACTIVATION OF THE A62 20-SECOND TIME-DELAY RELAY.					
	SYSTEM EFFECT-OPERATION STOPS PREMATURELY. TELEMETRY POWER DROPPED OUT DURING TELEMETRY SYSTEM POWER CHANGEOVER.					
	VEHICLE EFFECT-COMPONENT RE-SCHEDULED. POST-COMPONENT TESTING REQUIRED.					
	CORRECTIVE ACTION-INVESTIGATION REVEALED THAT THE SWITCHING SHOULD BE PERFORMED RAPIDLY TO DISABLE THE TIME-DELAY.					
	PAGE GOOT					

18 JUN 1968

## DIFFICULTIES REVIEW-INSTRUMENTATION &amp; SWITCH-ESE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE DIF TIME	PRI OTH	VENOR NAME VENOR PART NO
INSTRUMENTATION-GSE TELEMETRY POWER CONTROL	FTA-4411/P4-203-00-12 AMPLIFIER	COURTHORN	12B 801120	ETR -8520	YES NO	600461

FAILURE MODE-ERRATIC OPERATION. NOISE V2 YAW FEEDBACK SIGNAL ON BLOCKHOUSE BARBON RECORDER DUE TO INOPERATIVE RECO  
DER PRE-AMPLIFIER.

SYSTEM EFFECT-IMPROPER ANALOG SIGNALS. NOISE V2 YAW FEEDBACK SIGNAL.

VEHICLE EFFECT-COURTHORN DELAYED. 27 MINUTES HOLD.

CORRECTIVE ACTION-REPLACED PRE-AMPLIFIER.

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE DIF TIME	PRI OTH	VENOR NAME VENOR PART NO
INSTRUMENTATION-GSE TELEMETRY POWER CONTROL	FY42710/P4-103-00-16 WIRING	PAF	15A 880322	ETR -84	YES NO	600460

FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. FAILURE OF INSTRUMENTATION (COMBUSTION CHAMBER TEMPERATURE AND 115  
VAC OUTPUT) INDICATED THAT SYSTEM HAD FAILED TO START AT PRESCRIBED TIME. THE PAF WAS TERMINATED AT 2.00 SEC AFTER  
BOOSTER IGNITER LINKS BREAK.

SYSTEM EFFECT-NONE.

VEHICLE EFFECT-PREMATURE PROPULSION CUTOFF. TEST WAS TERMINATED 2.00 SEC AFTER BOOSTER IGNITER LINKS BREAK BY THE T  
EST CONDUCTOR WHEN THE MALFUNCTION WAS CALLED BY THE APS PANEL OBSERVER.

CORRECTIVE ACTION-UNKNOWN.

**LAUNCHER SYSTEM  
GSE  
DIFFICULTIES REVIEW**

## DIFFICULTIES REVIEW LAUNCHER GSE

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PAS OTH	VENDOR NAME VENDOR PART NO
LAUNCHER-GSE MECHANICAL	SLV-98-40-3336 FILTER ASSEMBLY	FAR 7-08207	980126	YES PERMANENT FILTER NO EA CORP. 1002S-3000		
	FAILURE MODE-STRUCTURAL. DURING INSPECTION TO SUPPORT CORRECTIVE ACTION FOR FAR SLV-98-40-3328 ELEMENT APPEARED TO BE MISSING SOME SINTERED BRONZE MATERIAL. THIS LOSS OF SINTERED BRONZE MATERIAL DUE TO HIGH VELOCITY GAS CARRYING LOOSE PARTICLES OUT THE OUTLET PORT.					
	CORRECTIVE ACTION-HISTORICAL DATA REVEALED THIS WAS THE ONLY REPORTED FAILURE OF THIS FILTER IN THE MODE DESCRIBED. CONVAIR DID NOT DEEM IT NECESSARY TO TAKE CORRECTIVE ACTION OTHER THAN MONITORING OF UNIT AND SYSTEM. MEMO DATED 12 MAY 1966 DOCUMENTS ABOVE ACTION.					
LAUNCHER-GSE MECHANICAL	SLV-98-40-3333 HOLDDOWN AND RELEASE PIN	FAR 27-49106-9	980126 CX13	YES GD/C NO		
	FAILURE MODE-CONTAMINATION. PIN WAS REJECTED WHEN DURING SURVEILLANCE INSPECTION, SEVERAL AREAS OF CORROSION AND PLATING THROUGH THE PROTECTIVE CHROME PLATING WERE FOUND ON BOTH HOR PINS.					
	CORRECTIVE ACTION-CONFIRMED FAILURES. FAILURE WAS CAUSED BY PLATING WEAR AND MINIMUM MAINTENANCE. LAUNCHER PINS TO BE COATED WITH MIL-G-3876A, 2D TO 3D THOUSANDTHS. NO ENCL-4 TRIM DRAWINGS CHANGES TO BE MADE. K-MO 981-7-4 DATED 25 JANUARY 1966 DOCUMENTS CORRECTIVE ACTION.					
LAUNCHER-GSE MECHANICAL	SLV-98-40-3332 RELEASE CYLINDER	FAR 27-88225-005	951111 1-2	YES LOAD MACHINE M NO ORKS		
	FAILURE MODE-FAIL DURING OPERATION. WHILE EXERCISING THE HOLDDOWN AND RELEASE SYSTEM, THE RELEASE CYLINDER WOULD NOT RETRACT THE LAST 4 INCHES.					
	CORRECTIVE ACTION-CONFIRMED FAILURE. SEGMENTS DID NOT COMPLETELY RESEAT IN THE GROOVE AS PISTON RETRACTED DUE TO LACK OF LUBRICATION. UNIT HAD BEEN STORED FOR AN EXTENDED PERIOD WHICH RESULTED IN INADEQUATE LUBRICATION. NO CORRECTIVE ACTION EASIER AND UNIFORMER RELEASE POSITIONED TO EASE CYLINDER UNIT TO RESEAT. UNIT INOPERABLE UNTIL 16 FEBRUARY 1966.					
LAUNCHER-GSE MECHANICAL	SLV-98-40-3330 SWIVEL JOINT SEAL	FAR 7-08207	981026 CX-14	YES BARCO NO 10-10284		

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18 JUN 1966

DIFFICULTIES REVIEW-LAUNCHER SYSTEM-GAE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
CORRECTIVE ACTION-CONFIRMED FAILURE. FAILURE WAS ATTRIBUTED TO LEAKAGE PAST THE GOUGED PRIMARY SEAL. FAILURE OF THE SEAL WAS CAUSED BY ABRASIVE CONTAMINANTS. CONVAIR INCLUDED THE ANIVEL JOINT IN MAINTENANCE LIST AHW 68-002, SPECIFYING UNIT OPERATIONAL AND CYCLIC LIFE PERIODS PER COMPONENT SPECIFICATION. ERA TO COVER SWIVEL JOINT WHEN PERSONNEL IS ANBLAST LAUNCHER. MEMO OF 10 MARCH 1966 DOCUMENTS CORRECTIVE ACTION.						
LAUNCHER-GAE MECHANICAL						
LAUNCHER-GAE SHOCK ABSORBER	FAR-CT-98-400-004 7-06221-1	650928 NO	650928 NO	650928 NO	650928 NO	650928 NO
FAILURE MODE-STRUCTURAL. THE RECEIVER IN THE LAUNCHER A-FRAME USED AS A SHOCK ABSORBER DURING LAUNCH WAS REJECTED DURING SURVEILLANCE INSPECTION BECAUSE OF A CRACKED ENDCAP. THE ANODIZED SURFACE OF THE ENDCAP WAS CHIPPED BY THE STA INLESS STEEL REDUCER EXPOSING THE ALUMINUM ALLOY TO THE ELEMENTS. R024-T4 ALUMINUM ALLOY OR THE ENDCAP DOES NOT HAVE 6000 CORROSION-RESISTANT PROPERTIES. GALVANIC CORROSION ACTION OCCURRED BETWEEN THE REDUCER AND THE ENDCAP.						
CORRECTIVE ACTION-G/C RECOMMENDED THE FOLLOWING IN ORDER FROM THE LEAST TO MOST EFFECTIVE METHOD OF PREVENTING ALU MINUM CORROSION, (A) KEEP ENDCAPS WELL PAINTED. (B) CADMIUM PLATE THE REDUCER AND BARREL. (C) ARTIFICIALLY AGE THE EN DCAPS TO THE T-6 CONDITION. (D) CHANGE ENDCAPS AND BARREL TO ANY 300-400K8 STAINLESS STEEL EXCEPT TYPE 303.						
LAUNCHER-GAE MECHANICAL	MSCAPE E150/PSS-LD-01-QAC	COUNTDOWN 650910	191C -5400	360 -5400	NO NO	650933 NO
FAILURE MODE-OUT OF TOLERANCE. TOWER REMOVAL TASK BEING IN SCHEDULE. SYSTEM EFFECT-OPERATION TOO LONG.						
VEHICLE EFFECT-COUNTDOWN DELAYED 15 MINUTES FOR COMPLETION OF TOWER REMOVAL AND SECURING THE TOWER. TOWER REMOVAL WAS POSSIBLY DELAYED TO REPLACE A BOOM MICROSWITCH.						
CORRECTIVE ACTION-UNKNOWN.						
LAUNCHER-GAE MECHANICAL	FAR-CT-98-40-005 COMPENSATOR, O-RING	650788 27-06041-1	650788 NO	650788 YES	650788 NO	650788 NO
FAILURE MODE-FAIL TO OPERATE AT PRESURIZED TIME. THE TEMPERATURE COMPENSATOR AIRLESSLY WAS REJECTED BECAUSE THE PISTON ON FAILED TO MOVE AT 200 PSIG WHEN THE PRESSURE WAS APPLIED TO THE 675 CHAMBER. THE PISTON MOVED AS REQUIRED AT 350 PSIG. A LARGE DING ON THE O-RING CAUSED INTERFERENCE BETWEEN THE PLATON AND BORE. USING HIGH PRESSURE AND CYCLING THE PISTON AND SHAFT MORE DOWN THE DING AND SCRATCHED THE GLANDS. CORROSION ALSO APPEARED ON THE ASSEMBLY BODY AND ENDCAPS WHERE NICKEL PLATING WAS CHIPPED.						
CORRECTIVE ACTION-RECOMMENDED, SINCE THE ASSEMBLY HAD BEEN REMARKED BY G/C, APPROPRIATE PERSONNEL SHOULD BE SHOWN THIS REPORT TO PROVIDE THEM WITH THE RESULTS OF INSTALLING DAMAGED PISTONS. ALL COMPONENTS SHOULD BE THOROUGHLY INSPECTED. PROTECTIVE COATING SHOULD BE APPLIED WHERE NICKEL PLATING IS CHIPPED.						

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DIRETCH TIES REVIEWED ALONGSIDE SYSTEMS

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	FATI OTH	VENDOR NAME VENDOR PART NO
LAUNCHER-68E MECHANICAL	FAIR-CT-18-40-088 COMPENSATOR, BEADS	FAR 7-08879-1	08002	13/ETP	YES LIQUEL-PACIFIC NO 2252-103	
LAUNCHER-68E MECHANICAL	LV-98-40-3323-F TEMPERATURE COMPENSATOR	FAR 7-08879-1	050514	13/ETP	YES LIQUEL-PACIFIC NO 2252-103	
LAUNCHER-68E MECHANICAL	LY-98-40-3323-F TEMPERATURE COMPENSATOR, O-RING	FAR 7-08879-1	050403	12/ETR	YES LIQUEL-PACIFIC NO 2252-103	
LAUNCHER-68E MECHANICAL	LY-90-40-3304-Y ACTUATING CYLINDER	FAR 7-08888	01000	12/EIA	YES J.C. PEACOCK NO OBSOLETE	

GENERAL DYNAMICS  
CONVENTIONAL DIVISION

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QUR'IC CHILOE: A STUDY OF THE QUR'AN IN CHILE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH VENDOR PART NO	VENDOR NAME
LAUNCHER-68E MECHANICAL	LY-98-40-3308-F TEMPERATURE COMPENSATOR O-RINGS	FAR 7-06279-1	680105 12/8/78	YES LIONEL-PACIFIC NO 2338-103		689709
	FAILING IN 1981, AND THE GRENTE WAS HYDROSTATIC.					
LAUNCHER-68E MECHANICAL	LY-98-40-3308-F TEMPERATURE COMPENSATOR O-RINGS	FAR 7-06279-1	680105 12/8/78	YES LIONEL PACIFIC NO OR INTERSTATE ENGINEERING 2338-103		689709
	FAILING IN 1981, AND THE GRENTE WAS HYDROSTATIC.					
LAUNCHER-68E MECHANICAL	LY-98-40-3308-F TEMPERATURE COMPENSATOR O-RINGS	FAR 7-06279-1	680105 12/8/78	YES LIONEL PACIFIC NO OR INTERSTATE ENGINEERING 2338-103		689709
	FAILURE MODE-EXTERNAL LEAK. THE TEMPERATURE COMPENSATOR LEAKED EXTERNALLY. THE LOW BRAKETE AND/OR THE BLENISH ON THE HYDRAULIC O-RINGS CAUSED THE O-RING SEAL LEAKAGE. THE O-RINGS HAD BEEN DAMAGED MECHANICALLY WHEN THE ROD HAS INSERTED THROUGH THE PACKING GLAND DURING ASSEMBLY.					
LAUNCHER-68E MECHANICAL	LY-98-40-3307-F TUBE ASSEMBLY-BLEEZE	FAR 87-00231-39	680600 13/8/78	YES ALLEN AIRCRAFT NO		689709
	FAILURE MODE-STRUCTURAL. THE STABILIZATION SYSTEM TUBE ASSEMBLY BLEEZE WAS CRACKED. THE CRACKED SLEEVE WAS CAUSED BY A COMBINATION OF (1) BENGITIZED METAL RENDERING IT SUSCEPTIBLE TO CORROSION ATTACK, (2) SULFUR/BELCHUM INCLUSIONS GIVING THE PART LOW TRANSVERSE STRENGTH, (3) CORROSIVE ATMOSPHERE AT ETR, (4) POSSIBLE EXPANSION AND CONTRACTION CAUSED BY MISSILE EXHAUST GAB HEAT.					
	CORRECTIVE ACTION-THE PRODUCT SUPPORT CENTER IMPLEMENTED MICROSCOPIC INSPECTION OF O-RINGS BEFORE INSTALLATION IN COMPONENTS.					
	CORRECTIVE ACTION-THE PRODUCT SUPPORT CENTER IMPLEMENTED MICROSCOPIC INSPECTION OF O-RINGS BEFORE INSTALLATION IN COMPONENTS.					
	CORRECTIVE ACTION-THE PRODUCT SUPPORT CENTER IMPLEMENTED MICROSCOPIC INSPECTION OF O-RINGS BEFORE INSTALLATION IN COMPONENTS.					
	PAGE 0024					

19 JUN 1969

## CONVAIR DIVISION

## DIFFICULTIES REVIEW-LAUNCHER SYSTEM-GSE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	OIF DATA SOURCE PART NUMBER	VEHICLE DATE D/F	SITE TIME D/F	PRI OTH	VENDOR NAME VENDOR PART NO
LAUNCHER-GSE MECHANICAL	LV-98-40-3247-F TUBE ASSEMBLY-SLEEVE	FAN 87-09258-223	640000	13/ETR	YES ALLEN AIRCRAFT NO	699791

FAILURE MODE-STRUCTURAL. THE RETRACTION SYSTEM TUBE ASSEMBLY SLEEVE WAS CRACKED. THE CRACKED SLEEVE WAS CAUSED BY A COMBINATION OF (1) SENSITIZED METAL RENDERING IT SUSCEPTIBLE TO CORROSION ATTACK. (2) SULFUR/SELENIUM INCLUSIONS CAUSING THE PART LOW TRANSVERSE STRENGTH. (3) CORROSIVE ATMOSPHERE AT ETR. (4) POSSIBLE EXPANSION AND CONTRACTION CAUSED BY MISSILE EXHAUST GAS HEAT.

CORRECTIVE ACTION-TYPE-303 STAINLESS STEEL HAS BEEN OLETED AS ACCEPTABLE MATERIAL FOR TUBE ASSEMBLY FITTINGS. STOCKS WERE NOT PURGED, BUT WERE TO BE DEPLETED THROUGH NORMAL USE.

LAUNCHER-GSE MECHANICAL	LV-98-40-3258-F SLAVE CYLINDER O-RINGS	FAN 7-09264-1	640722	12/ETR	YES PEACOCK NO D50664	699807
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FAILURE MODE-LEAK. THE CYLINDER LEAKED FROM THE HYDRAULIC TO THE PNEUMATIC PORTION IN THE CYLINDER. THIS INTERNAL LEAKAGE WAS PAST THE HYDRAULIC O-RING, AND WAS CAUSED BY ACCUMULATION OF WOOL FIBERS.

CORRECTIVE ACTION-THE VENDOR STATES THAT THE O-RING STOCK HAS BEEN PURGED, AND EFFECTIVE 5 NOVEMBER 1964 AN ASSEMBLY AND INSPECTION BUT OFF SHEET WAS INITIATED TO PRECLUDE POSSIBLE RECURRENTCE.

LAUNCHER-GSE MECHANICAL	SP-98-40-3195C AIR CYLINDER	FAN 87-09100-8	630701	13	YES MILLER NO 366	699871
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FAILURE MODE-FAILED DURING OPERATION, CYLINDER APPEARED TO BE BINDING DURING OPERATION. THE PROBLEM REPORT WAS GENERATED AS INFORMATION. THE AIR CYLINDER WAS NOT RECEIVED FOR FAILURE ANALYSIS.

CORRECTIVE ACTION-NONE.

LAUNCHER-GSE MECHANICAL	SP-98-40-2184F LAUNCHER MASTER CYLINDER, GLAND HUT 7-09263	FAN T	630622	13/ETR	YES PEACOCK NO D50803F	699808
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FAILURE MODE-STRUCTURAL. THE PLATON WAS FOUND TO BE BINDING IN THE EXTENDED POSITION. THE CYLINDER FAILED DUE TO IMPROPER ADJUSTMENT OF THE GLAND HUT DURING REBUILDING. THE DAMAGED BACKUP RINGS WOULD CAUSE THE O-RINGS TO FAIL AFTER REPETITIVE PRESSURIZATION DURING USE.

CORRECTIVE ACTION-TO MAINTAIN CONTROL OVER THE LOCIWIRE AND ADJUSTMENT OF THE GLAND NUT, CONVAIR IS REVISING THE PERFORMANCE CHECK SHEET TO HAVE THE CYLINDER LOCKWIRED PER PEACOCK DRAWING D508036, BEFORE FUNCTIONAL TESTING.

DIRECTORIAL REVIEW-LAWRENCE STETERN-66

TEST/REPORT NUMBER	DIF DATA SOURCE	VEHICLE	SITE	PRI	VENOM NAME
FAILED COMPONENT NAME	PART NUMBER	DATE DIS	TIME DIS	OTH	VENOM PART NO
STATION	000-0000	10/10/00	12:00PM	YES	PERCOCET
000-0000	10/10/00	12:00PM	12:00PM	NO	DUS888

FALLOUT NOSE-EXTENSION LEAK. THE 4800 PAIS SLAVE CYLINDER LEAKED HYDRAULIC FLUID PAST THE SHAFIT SEAL. THE REPORTED FAILURE COULD NOT BE REPLICATED OR CONFIRMED BY FAILURE ANALYSIS.

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LAUNCHER-40  
MICHIGAN CAL  
AG-98-40-17PF  
SMVFL JOINT  
FAR  
RT-08758-7  
680202Z  
12/4TR  
YES BARCO  
NO

FAILURE MODE-EXTERNAL LEAKAGE. THE SHIVEL JOINT FAILED DUE TO LEAKAGE WHEN IT WAS INSTALLED AS A REPLACEMENT FOR A DAMAGED PART. INSPECTION OF THE UNIT REVEALED A PIECE OF LOCK-WIRE LOOSED BETWEEN THE KEL-F SEAL AND THE SHIVEL BALL.

CORRECTIVE ACTION-EFFECTIVE 7 SEPTEMBER 1968

LAUNCHER-6SE  
WICHARD C/L  
AS-58-40-082  
DAVE CYLINDER  
FAR  
7-D8284-1A  
#10723 12/E/T/R YES PEACOCK  
NO

FALLS MODE-LEAK. THE LAUNCHER RESPONSE WAS REPORTED TO BE SLOW OR SPORADIC DURING THE LAUNCHER GOLD RELEASE TEST. THIS DOUBLE SHOOTING INDICATED THAT THE CYLINDER WAS LEAKING INTERNALLY. THE FAILURE WAS NOT CONFIRMED. EXAMINATION OF THE METERING ORIFICE REVEALED SEVERAL DENTS IN THE UPSTREAM CRIPPLE PLATE AND THE ORIFICE WAS WICKED. IT WAS CONCLUDED THAT THE SLOW OR SPORADIC OPERATION OF THE CYLINDER WAS CAUSED BY A FOREIGN PARTICLE INTERMITTENTLY BLOCKING THE METERING ORIFICE. THIS FOREIGN PARTICLE, PROBABLY A SMALL METAL CHIP, MAY HAVE BEEN INADVERTENTLY LOST DURING EXCHANGEM OF CFC TUBING FOR FIELD TROUBLE SHOOTING OR DURING SHIPMENT.

COOPERATIVE AGRICULTURE.

LASERHEM-65C  
MECHANICAL  
AZC-27-0327/4-4G3-00-07  
PIN  
FLIGHT  
3C0516  
14  
YES  
NO

**PALEOZOIC** THE PRIMITIVE PRESERVATION DUCT (AIRBONE) AND BOOSTER THRUST SECTION.

SOMA VENKATARAMAN 188

TRADE SHOW TO SUPPORT THE PRESERVATION PROJECT.

15 JUN 1966

VEHICLE DIVISION  
CONVAIR DIVISION

## DIFFICULTIES REVIEW-LAUNCHER SYSTEM-6SE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	OIF DATA SOURCE PART NUMBER	VEHICLE DATE OFF	BITE TIME OFF	PRI OTH	VENDOR NAME VENDOR PART NO
699478						
LAUNCHER-6SE MECHANICAL	2C-T-203/P1-202-00-08 RELEASE ARM ACTUATING STRUT	FLIGHT 88 880916	68 D.	12 NO	YES	
<p>CORRECTIVE ACTION-MOLDOOM PIN RETRACTING LINKAGE ADJUSTMENT PROCEDURE TO BE SUPPLEMENTED. INSPECTION PROCEDURE TO CHECKING OF ALL JOINTS FOR PROPER ADJUSTMENT AND LUBRICATION. AND TO CHECK FOR PROPER CLEARANCE TO INCLUDE THE CHECKING OF ALL JOINTS FOR PROPER ADJUSTMENT AND LUBRICATION. AND TO CHECK FOR PROPER CLEARANCE FOR ALL MOVING PARTS. BELL CLEAVE RETAINING BOLTS OF HIGHER HEAT-TREAT STEEL TO BE INSTALLED ON ALL LAUNCHERS.</p>						
LAUNCHER-6SE MECHANICAL	FT1A008/P1-202-00-3	COUNTDOWN 380915	35 -2700	11 NO	YES	699434
<p>FAILURE MODE-FAIL DURING OPERATION. THE LAUNCHER RELEASE ARM ACTUATING STRUT AND LAUNCHER HEAD FAILED TO ACTUATE PROPERLY RESULTING IN DRAGGING ALONG THE FAIRING AB THE VEHICLE ROSE. THE BI ENGINE SIDE OF THE BOOSTER SECTION WAS DAMAGED BUT THIS DID NOT RESULT IN ANY EFFECT TO THE LATER LOSS OF THE VEHICLE.</p> <p>SYSTEM EFFECT-OPERATION STARTS TOO LATE.</p> <p>VEHICLE EFFECT-LOSS OF VEHICLE INTEGRITY. THE BI ENGINE SIDE OF THE BOOSTER SECTION WAS DESTROYED- HOWEVER, THIS DID NOT RESULT IN THE LATER LOSS OF THE VEHICLE.</p> <p>CORRECTIVE ACTION-CHANGED LAUNCHER MAINTENANCE AND CHECKOUT PROCEDURES.</p>						
LAUNCHER-6SE MECHANICAL	CT-98-40-064 PNEUMATIC PRESSURIZATION A-FRAME RETRACT CYLINDER. SEAL	FAR 7-06247	600309 76A	600309 2205-1	600309 NO	CLENCO AERO
<p>FAILURE MODE-INTERNAL LEAKAGE. DURING MECHANICAL CHECKOUT PROCEDURE CTP-MECH-0006B, STEP 6.2.3 WITH 2000 PSI APPLIED GAS LEAKED BY OR THROUGH THE PISTON AT 3 STANDARD INCHES. PER MINUTE.</p> <p>CORRECTIVE ACTION-COMPRESSED AIR FAILURE. LEAKAGE WAS ATTRIBUTED TO FELT FIBERS BRIDGING THE PISTON O-RING. CHANGE CHECK OUT PROCEDURE TO ALLOW SAME LEAKAGE RATE THAT APPLIES WHEN CYLINDER IS PURCHASED. REPAIR DEPOT TO ASSURE CORRECT LUBRICANT IS BEING USED IN CYLINDERS, AND TO EXERCISE CARE TO PREVENT DAMAGE TO BACKUP RINGS.</p>						

16 JUN 1986

CONVAIR DIVISION

## DIFFICULTIES REVIEW-LAUNCHER SYSTEM-GSE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME PART NO
LAUNCHER-GSE PNEUMATIC PRESSURIZATION	CT-88-40-267 RELEASE CYLINDER	FAR 7-001669	660200 36A	725	60/C NO	699516
FAILURE MODE-STRUCTURAL. DURING SPECIAL TEST PROCEDURE, TPS 36A-1868 LOCKING SEGMENT SCREWS WERE DAMAGED DUE TO FORCIBLE EXTENSION OF THE RELEASE CYLINDER						
CORRECTIVE ACTION-CONFIRMED FAILURE. GO/C PERSONNEL WILL COMPLETELY DEPRESSURIZE RELEASE CYLINDER DURING MANUAL EXIT DRILL, AND VENTED TO ATMOSPHERE DURING THIS EXERCISE.						
LAUNCHER-GSE PNEUMATIC PRESSURIZATION	CT-88-200-133 PNEUMATIC RELIEF VALVE	FAR	660203 36B	ANDERSON, CREE MACOOD 43844-2		
FAILURE MODE-EXTERNAL LEAKAGE. UNIT LEAKED AT 4000 PSI DURING SYSTEM TESTING PER PROCEDURE CTP-MECH-1004.						
CORRECTIVE ACTION-CONFIRMED FAILURE. CONTAMINATION ON THE O-RING CAUSED THE FAILURE. THE CRUMBLY PLASTIC-LIKE MATERIAL EVIDENTLY CAME FROM THE TEST SETUP. METALLIC PARTICLES MOST LIKELY CAME FROM THE ETR EQUIPMENT. BETTER QUALITY CONTROL PROCEDURES TO BE INSTITUTED.						
LAUNCHER-GSE PNEUMATIC PRESSURIZATION	CT-88-400-066 PRESSURE REGULATOR	FAR 87-02155-2	651028 36A	YES APCO NO 317500-1		699516
FAILURE MODE-INTERNAL LEAK. THE REGULATOR DID NOT FUNCTION AS A CHECK VALVE AND ALLOWED SYSTEM PRESSURE TO BLEED DOWN.						
CORRECTIVE ACTION-CONFIRMED FAILURE. LEAKAGE PAST THE CHECK VALVE SECTION WAS ATTRIBUTED TO THE NYLON SEAT BEING IMPROPERLY INSTALLED DURING REGULATOR ASSEMBLY. LEAKAGE PAST THE SEAT IS NOW BEING TESTED. VENDOR IS TO TAKE ACTION TO INSURE CORRECT INSTALLATION OF VALVE SEAT.						
LAUNCHER-GSE PNEUMATIC PRESSURIZATION	SLV-88-40-2328 PRESSURE REGULATOR	FAR 7-00327-403	651026 36A	YES WESTON HYDRAUL NO ICS 15400-3		
FAILURE MODE-OUT OF TOLERANCE. THE REGULATOR, A COMPONENT OF THE HOLDDOWN, RELEASE AND SLAVING SUB SYSTEM, WAS REJECTED WHEN THE OUTLET PRESSURE GREW TOO HIGH AND COULD NOT BE ADJUSTED.						
CORRECTIVE ACTION-CONFIRMED FAILURE. FAILURE WAS ATTRIBUTED TO LEAKAGE PAST THE MAIN POPPET. THIS OCCURRED AFTER NYLON SEAT WAS DAMAGED BY CONTAMINANT PARTICLES. CONVAIR QC CORRECTIVE ACTION TAKEN TO INSPECT UPSTREAM FILTER, RELIEF VALVE ASSEMBLIES, REINSPECT MS-180001 GALS IN STOCK. INSPECT LAPPING OF VALVE SEAT BACK UP RINGS ELIMINATED ON -5 & AS SCHLICKE. PROCUREMENT PN, A-0028-15F DATED 9 FEB 1986 DOCUMENTS CORRECTIVE ACTION EFFECTIVE ON ALL SERIAL NUMBERS HIG						

18 JUN 1968

## DIFFICULTIES REVIEW-LAUNCHER SYSTEM-685

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI	VENDOR NAME VENDOR PART NO
LAUNCHER-685 PNEUMATIC PRESSURIZATION	CT-98-580-131 RELIEF VALVE	FAR	651001	368/ETH YES ANDERSON GREEN NO WOOD	43B44-Z	699520
LAUNCHER-685 PNEUMATIC PRESSURIZATION	CT-98-580-131 RELIEF VALVE	FAR 55-026159-1	651001	368 YES ANDERSON-GREEN NO WOOD	43B44-Z	699520
LAUNCHER-685 PNEUMATIC PRESSURIZATION	SLY-9D-40-332T MOULDOWN AND RELEASE VALVE	FAR 27-08754-803	650823	2-4 YES BENBON NO 9464-9	43B44-Z	699520
FAILURE MODE-INTERNAL LEAK. VALVE WAS NOTED TO BE LEAKING INTERNALLY WHERE THE NOZZLE CONTACTS THE VALVE BODY. TEST INDICATED THE LEAK OCCURRED BETWEEN THE NOZZLE FLANGE AND GUIDE AND AROUND THE POPPET SEAT. ALSO, THE GUIDE AND NOZZLE FLANGE WERE DISTORTED.						
CORRECTIVE ACTION-VALVE SHOULD BE ASSEMBLED CAREFULLY IF REMOVED AND OVERFORGING OF THE VALVE BONNET SHOULD BE AVOIDED.						
FAILURE MODE-LEAK. RELIEF VALVE LEAKED INTERNALLY AT THE NOZZLE-TO-VALVE BODY CONTACT POINT. ANALYSIS CONFIRMED FAILURE AND DISCLOSED LEAKAGE AT OTHER INTERNAL POINTS DUE TO DISTORTED AND CROOKED COMPONENTS. IT IS PROBABLE THAT THIS DAMAGE RESULTED FROM OVERFORGING THE VALVE BONNET AND FROM IMPROPER INSTALLATION OF THE NOZZLE DURING RE-ASSEMBLY AFTER THE VALVE HAD BEEN DISASSEMBLED.						
CORRECTIVE ACTION-RECOMMENDED THAT REMOVAL PERSONNEL BE CAUTIONED TO ASSEMBLE VALVE WITH CARE AND NOT TO OVERFORGE THE VALVE BONNET.						
FAILURE MODE-OUT OF TOLERANCE. DURING A SERIES OF BLOWSOFFS, THE VALVE WAS FOUND TO BE LASING AT THE RISEOFF POINT						
CORRECTIVE ACTION-CONFIRMED FAILURE. THE REPORTED FAILURE APPARENTLY RESULTED FROM INCREASED FRICTION DUE TO CALLING OUT ASSEMBLY AND INSPECTION PROCEDURES IN DETAIL. REPLY TO CORRECTIVE ACTION REPORT 7411-65 DOCUMENTED VENDOR ACTION.						
LAUNCHER-685 PNEUMATIC PRESSURIZATION	60/C-BHZ55-053RCVB/P58-10-02-0AC9 COUNTDOWN 8121 2000 psi PNEUMATIC LINE	87-06100-005	650823	1-10 YES BENBON PLUS 10 NO	43B44-Z	699520
FAILURE MODE-STRUCTURAL. THE QUAD III 2000 psi LINE WAS RUPTURED, POSSIBLY BY THRUST GBLAST AFTER LIFTOFF.						
SYSTEM EFFECT-STRUCTURAL. THE LAUNCHER A FRAMED RETURNED TO THE UPRIGHT POSITION AT PLUS 10 SECONDS.						

18 JUN 1984

## DIFFICULTIES REVIEW-LAUNCHER SYSTEM-68C

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DEF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE DIF OTN	PRI	VENDOR NAME VENDOR PART NO
68982						

VEHICLE EFFECT-NONE.

CORRECTIVE ACTION-RUPTURED LINE WAS REPLACED.

LAUNCHER-68C PNEUMATIC PRESSURIZATION	FAR-CT-98-40-883 GAS REGULATOR, POPPET	FAR 7-00387-003	690802 NO LICS 15400-3	308/ETR	YES	WESTERN HYDRAULIC 68982
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FAILURE MODE-STRUCTURAL. THE PNEUMATIC HOLDDOWN AND RELEASE GND PRESSURE REGULATOR CONTINUOUSLY VENTED WHEN 2000 PSI & INLET PRESSURE WAS APPLIED. VENTING WAS CAUSED BY TILTING OF THE MAIN POPPET ASSEMBLY RESULTING IN LEAKAGE AND DAMAGE TO THE PLASTIC POPPET. TILTING OF THE POPPET ASSEMBLY RESULTED FROM THE USE OF AN UNGROUND, UNSQUARED, OFF CENTERED SPRINGS. THE DESIGN DOES NOT PROVIDE FOR SPRING CENTERING AT THE LARGER SPRING DIAMETER.

CORRECTIVE ACTION-GO/C RECOMMENDED THAT THE VENDOR BE INFORMED OF THE CAUSE OF FAILURE AND REQUEST VENDOR (A) GRIND ENDS OF SPRING SQUARE (B) PROVIDE MEANS FOR CENTERING THE LARGE DIAMETER OF THE SPRING AGAINST THE MAIN SEAT.

LAUNCHER-68C PNEUMATIC PRESSURIZATION	LV-98-40-3310-F SOLENOID VALVE	FAR 99-95002-001	690424 NO	12/ETR	YES	SOUTHEASTERN 689798
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FAILURE MODE-EXTERNAL LEAKAGE. THE VALVE REPORTEDLY FAILED WHEN LEAKAGE OF APPROXIMATELY 100 SCINS WAS OBSERVED. DISASSEMBLY DISCLOSED A CORROSION BUILDUP IN A CRITICAL AREA OF THE SOLENOID ARMATURE. THIS BUILDUP WOULD EFFECTIVELY SHORTEN THE POPPET STROKE AND CAUSE THE REPORTED FAILURE.

CORRECTIVE ACTION-DESIGN PERSONNEL ARE PRESENTLY TAKING ACTION TO REPLACE THIS VALVE WITH A DIFFERENT PART NUMBER VALVE. RELOCATION AND SHIELDING OF THIS VALVE WAS APPROVED AND OPERATIONALLY TESTED. ACCORDING TO DESIGN PERSONNEL, THIS VALVE IS NOT NOW EXPOSED TO THE MISSILE EXHAUST OR FIREX STREAM.

LAUNCHER-68C PNEUMATIC PRESSURIZATION	LAUNCH RELEASE SOLENOID VALVE O-R1 99-35002-001 MS	FAR MS	690316 NO 800774	12/ETR	YES	MAROTTA 689755
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FAILURE MODE-EXTERNAL LEAK. THE VALVE LEAKED BETWEEN THE VALVE BODY AND THE SOLENOID ASSEMBLY. LEAKAGE WAS CAUSED BY A SHEARED O-RING ALLOWING INLET PRESSURE TO ESCAPE THROUGH THE VALVE BODY VENT HOLE. IT COULD NOT BE DETERMINED HOW OR WHEN THE O-RING WAS SHEARED.

CORRECTIVE ACTION-CORVAIR REPAIR FACILITY PERSONNEL WERE ADVISED OF THE FAILURE AND THE SHEARED O-RING. NO OTHER CORRECTIVE ACTION TAKEN.

GENERAL DYNAMICS

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DIFERENTIATED REVIEWS - LAUNCHES 9311EM-08

18 JUN 1966

## CONVAIR DIVISION

## DIFFICULTIES REVIEW-LAUNCHER SYSTEM-SSE

SYSTEM SSE-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI 0TH	VENDOR PART NO	VENOR NAME
CORRECTIVE ACTION-REGULATOR WAS REPLACED.							699467
LAUNCHER-SSE PNEUMATIC PRESSURIZATION	BHF84-039/PB-401-00-195 LBU PISTON RETAINER RINGS	COUNTDOWN 640903	1950 -18000	12/ETR NO	YES	699468	
FAILURE MODE-STRUCTURAL. THE PISTON RETAINER RING OF THE LBU COMPRESSOR FAILED, DAMAGING THE PISTON AND DISINTEGRATING THE CARBON BEARING. AS A RESULT THE LBU COMPRESSOR WAS INOPERATIVE.							
SYSTEM EFFECT-COUNTDOWN ABORTED AND RESCHEDULED.							
LAUNCHER-SSE PNEUMATIC PRESSURIZATION	FAR-LV-98-38-4019 LAUNCHER BOOSTER UNIT COMPRESSOR R M/A 7-08552-009 ING	FAR 640903	12/ETR NO	YES HASSELL 13927	699474		
FAILURE MODE-FAIL DURING OPERATION. THE LAUNCHER BOOSTER UNIT COMPRESSOR ASSEMBLY PISTON-RETAINING RING FAILED COMPLETELY DISINTEGRATING THE PISTON. THE RETAINING RING BROKE INTO SEVERAL PIECES AS A RESULT OF AN OVERLOAD CONDITION. IT WAS CONCLUDED THE RING IS NOT CAPABLE OF SUSTAINING THE CYCLIC COMPRESSIVE LOADS EXERTED IN THE COMPRESSOR.							
CORRECTIVE ACTION-TCP 6314 APPROVED BY SALES ORDER 321-1-521 TO REMOVE LBU FROM CX 12. A PARALLEL HI PRESSURE GAS LINE HAS ALREADY BEEN INSTALLED AT CX 12.							
LAUNCHER-SSE PNEUMATIC PRESSURIZATION	AAG4-0550/PB-401-00-195 LAUNCHER BOOSTER UNIT	COUNTDOWN 640903	1950 -12000	12 NO	YES	699468	
FAILURE MODE-FAILED DURING OPERATION. LBU INOPERATIVE BECAUSE OF FAILURE OF FIRST STAGE COMPRESSOR.							
SYSTEM EFFECT-OPERATION STOPPED PREMATURELY. LBU DID NOT SUPPLY HIGH PRESSURE NITROGEN TO THE LAUNCHER HOLD DOWN CYLINDERS.							
VEHICLE EFFECT-COUNTDOWN ABORTED AND RESCHEDULED HOLD FOR 80 MINUTES PRIOR TO ABORT.							
LAUNCHER-SSE PNEUMATIC PRESSURIZATION	LY-8D-40-2871-7 LAUNCH RELEASE SOLENOID VALVE	COUNTDOWN 640903-002	1950 NO	YES MAROTTA SOUTHWEST 800774	NO EASTERN	699468	
FAILURE MODE-TAIL TO CEASE OPERATION AT FREEZING TIME. THE VALVE CONTINUOUSLY VENTED IN THE CHARGE POSITION DURING LAUNCHER COLD RELEASE TEST. FAILURE OF THE SOLENOID VALVE WAS ATTRIBUTED TO A CONTAMINANT IN THE TEFELON SEAL SURFACE.							

REMARKS

18 JUN 1966

## CONVAIR DIVISION

## DIFFICULTIES REVIEW-LAUNCHER SYSTEM-685

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
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CORRECTIVE ACTION-MODE.

LAUNCHER-685 PNEUMATIC PRESSURIZATION	LV-98-40-3270-F LAUNCH RELEASE SOLENOID VALVE	FAR 99-35002-001	640817	12/ETR	YES MAROTTA SOUTHWEST	699787
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FAILURE MODE-OUT OF TOLERANCE. THE VALVE OPERATED SLUGGISHLY DURING A LAUNCHER COLD RELEASE TEST. THE SLUGGISH OPERATION OF THE SOLENOIDS IS ATTRIBUTED TO MALADJUSTMENT OF THE VALVE DURING REMOVAL. LEAKAGE OF CYLINDER 2, SEAT D WAS ATTRIBUTED TO CORROSION ON THE ARNATURE. CORROSION WAS CAUSED BY EXPOSURE TO A HIGHLY-CORROSIVE ENVIRONMENT. SOLENOID EMERGING TIME OUT OF SPEC. INDICATING 120 MS.

CORRECTIVE ACTION-GOC PRODUCT SUPPORT CENTER CHECK SHEET 231 HAD BEEN REVISED TO REQUIRE A 100 MILLISECONDS RESPONSE TIME FOR REBUILT VALVES.

LAUNCHER-685 PNEUMATIC PRESSURIZATION	LV-98-40-3247-F TUBE ASSEMBLY-SLEEVE	FAR 27-09256-41	640800	13/EIR	YES ALLEN AIRCRAFT NO	699800
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FAILURE MODE-STRUCTURAL. THE AUXILIARY SUPPORT RETRACTION SYSTEM TUBE ASSEMBLY SLEEVE WAS CRACKED. THE CRACKED SLEEVE WAS CAUSED BY A COMBINATION OF (1) SENSITIZED METAL RENDERING IT SUSCEPTIBLE TO CORROSION ATTACK. (2) SULFUR/SELENIUM INCLUSIONS GIVING THE PART LOW TRANSVERSE STRENGTH. (3) CORROATIVE ATMOSPHERE AT ETR. (4) POSSIBLE EXPANSION AND CONTRACTION CAUSED BY MISSILE EXHAUST GAS HEAT.

CORRECTIVE ACTION-TYPE-303 STAINLESS STEEL HAS BEEN DELETED AS ACCEPTABLE MATERIAL FOR TUBE ASSEMBLY FITTINGS. STOCKS WERE NOT PURGED, BUT WERE TO BE DEPLETED THROUGH NORMAL USE.

LAUNCHER-685 PNEUMATIC PRESSURIZATION	LV-98-40-3247-F TUBE ASSEMBLY-SLEEVE	FAR 27-09259-21	640800	13/EIR	YES ALLEN AIRCRAFT NO	699798
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FAILURE MODE-STRUCTURAL. THE PURGE ASSEMBLY TUBE ASSEMBLY SLEEVE WAS CRACKED. THE CRACKED SLEEVE WAS CAUSED BY A COMBINATION OF (1) SENSITIZED METAL RENDERING IT SUSCEPTIBLE TO CORROSION ATTACK. (2) SULFUR/SELENIUM INCLUSIONS GIVING THE PART LOW TRANSVERSE STRENGTH. (3) CORROATIVE ATMOSPHERE AT ETR. (4) POSSIBLE EXPANSION AND CONTRACTION CAUSED BY MISSILE EXHAUST GAS HEAT.

CORRECTIVE ACTION-TYPE-303 STAINLESS STEEL HAS BEEN DELETED AS ACCEPTABLE MATERIAL FOR TUBE ASSEMBLY FITTINGS. STOCKS WERE NOT PURGED, BUT WERE TO BE DEPLETED THROUGH NORMAL USE.

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## GENERAL DYNAMICS CONCLUDING DIVISION

THE JOURNAL OF CLIMATE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	GITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO	0000794
LAUNCHER-63E PNEUMATIC PRESSURIZATION	LV-98-40-3247-F TUBE ASSEMBLY-SLEEVE	FAR 27-000230-41	840800	18/EIR	YES	ALLEN AIRCRAFT NO	
LAUNCHER-63E PNEUMATIC PRESSURIZATION	LV-98-40-3247-F TUBE ASSEMBLY-SLEEVE	FAR 27-000230-41	840800	18/EIR	YES	ALLEN AIRCRAFT NO	
LAUNCHER-63E PNEUMATIC PRESSURIZATION	LV-98-40-3247-F TUBE ASSEMBLY-SLEEVE	FAR 27-000230-41	840800	18/EIR	YES	ALLEN AIRCRAFT NO	

FAILURE MODE-STRUCTURAL. THE STABILIZATION SYSTEM TUBE ASSEMBLY SLEEVE WAS CRACKED. THE CRACKED SLEEVE WAS CAUSED BY A COMBINATION OF (1) SENSITIZED METAL RENDERING IT SUSCEPTIBLE TO CORROSION ATTACK. (2) SULFUR/BERSEUM INCLUSIONS GIVING THE PART LOW TRANSVERSE STRENGTH. (3) CORROATIVE ATMOSPHERE AT ETR. (4) POSSIBLE EXPANSION AND CONTRACTION CAUSED BY MISSILE EXHAUST GAS HEAT.

CORRECTIVE ACTION-TYPE-303 STAINLESS STEEL HAS BEEN DELETED AS ACCEPTABLE MATERIAL FOR TUBE ASSEMBLY FITTINGS. STOCK IS NOT PURCHASED, BUT USED TO REPLACE THICKWALL TUBE ASSEMBLIES.

LAUNCHER-69E  
PNEUMATIC PRESSURIZATION

LV-98-40-3247-F  
TUBE ASSEMBLY-SLEEVE

FAR  
27-89259-17

840800  
12/EIR  
NO

YES ALLEN AIRCRAFT  
INC

FAILURE MODE-STRUCTURAL. THE PURGE SYSTEM TUBE ASSEMBLY SLEEVE WAS CRACKED. THE CRACKED SLEEVE WAS CAUSED BY A COMBINATION OF (1) SENSITIZED METAL, RENDERING IT SUSCEPTIBLE TO CORROSION ATTACK. (2) SULFUR/SELENIUM INCLUSIONS GIVING THE PART LOW TRANSVERSE STRENGTH. (3) CORROATIVE ATMOSPHERE AT ETR. (4) POSSIBLE EXPANSION AND CONTRACTION CAUSED BY A

CORRECTIVE ACTION - TYPE-303 STAINLESS STEEL HAS BEEN DELETED AS ACCEPTABLE MATERIAL FOR THE ASSEMBLY FITTINGS. STOCK

LAUNCHER-65C	LV-29-10-324Y-F	P&R	\$40000	13/EIR	YES ALLEN AIRCRAFT
<b>PNEUMATIC PRESSURIZATION</b>	TUBE ASSEMBLY-SLEEVES	97-AK000000			

THE STRETCH BLING TUBE ASSEMBLY SLEEVE WAS CRACKED. THE CRACKED SLEEVE WAS CAUSED BY A COMBINATION OF (1) MECHANICAL FAILURE MODE-STRUCTURAL. THE PART LOW TRANSVERSE STRENGTH. (2) SULFUR/SELENIUM INCLUSIONS GIVING THE PART LOW TRANSVERSE STRENGTH. (3) CORROSIVE ATMOSPHERE AT ETH. (4) POSSIBLE EXPANSION AND CONTRACTION CAUSED BY MISSILE EXHAUST GAS WASH.

CORRECTIVE ACTION-TYPE-303 STAINLESS STEEL HAS BEEN DELETED AS ACCEPTABLE MATERIAL FOR TUBE ASSEMBLY FITTINGS. STOCKS WERE NOT PURCHASED, BUT WORK TO ASSEMBLE TUBE ASSEMBLIES CONTINUED THROUGHOUT THE PERIOD.

UNCHER-68E FAR-CT-88-400-046 FAR 64D601 38A/ETR YES SOUTHWESTERN  
EUMATIC PRESSURIZATION SOLEMOTO VALVE 24VDC

FAILURE MODE-LEAK. THE PNEUMATIC HOLDDOWN AND RELEASE 3 POSITION SOLENOID VALVE DEVELOPED A LEAK AS A RESULT OF CORROSION AROUND THE SOLENOID, ARMATURE, ARNATURE RETURN SPRING, INSIDE THE SOLENOID CAP, ELECTRICAL CONNECTIONS AND SKELLS, PREVENTING PROPER SEATING OF THE POPPET SEAL. CORROSION WAS CAUSED BY INABILITY OF THE VALVE DESIGN TO PREVENT OISIURE FROM ENTERING THE SOLENOID HOUSING.

GENERAL DYNAMICS  
CONVAIR DIVISION

16 JUN 1968

DIFFICULTIES REVIEW LAUNCHER SYSTEM-GSE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	OIF DATA SOURCE PART NUMBER	VEHICLE DATE OF TIME DIF	SITE DIF	PAI OTH	VENDOR NAME VENDOR PART NO
LAUNCHER-GSE	FAR-CT-9B-400-047 PNEUMATIC PRESSURIZATION VALVE	FAR 7-00394-1	640925 7-00394-1	36A/EIR NO	YES	BARKSDALE 687M6A03

699617

CORRECTIVE ACTION-RECOMMENDED VENDOR REVIEW SOLENOID CAP O-RINGS AND ELECTRICAL CONNECTOR RUBBER GASKET SEALING METHOD AND IMPROVE SEALS. ALSO POPPET SPRING BE CADMIUM PLATED AND ALL ALUMINUM PARTS IN POPPET SPRING AREA BE HARD COAT ANODIZED OR CHANGED TO STAINLESS STEEL. IF ABOVE IS NOT ACCOMPLISHED, A 6 MONTH MAINTENANCE REPLACEMENT PROCEDURE SHOULD BE SET UP.

LAUNCHER-GSE	TEST/REPORT NUMBER FAILED COMPONENT NAME	OIF DATA SOURCE PART NUMBER	VEHICLE DATE OF TIME DIF	SITE DIF	PAI OTH	VENDOR NAME VENDOR PART NO
	FAR-CT-9B-400-047 PNEUMATIC PRESSURIZATION VALVE	FAR 7-00394-1	640925 7-00394-1	36A/EIR NO	YES	BARKSDALE 687M6A03

FAILURE MODE-LEAK. THE HOLDDOWN RELEASE CYLINDER VALVE SHOWED AN AUDIBLE LEAK AT 2500 PSI AND LEAKAGE INCREASED PROPOSITIONALLY AS THE PRESSURE WAS INCREASED TO 6250 PSI. VALVE WAS FIELD DISASSEMBLED AND VALVE PLATE WAS SCORED IN THE SEATING AREA. THE FAILURE WAS CONFIRMED AND ATTRIBUTED TO THE SCRATCHED PLATE, AND SEAT APPARENTLY FROM CONTAMINANT BLOWING THRU THE VALVE. THERE IS NO DOWNSTREAM PROTECTION TO PREVENT CONTAMINANT FROM ENTERIES AT THE VENTPORTS.

CORRECTIVE ACTION-RECOMMENDED USE OF ANY ONE OF THE FOLLOWING (A) INSTALL LOW BACK PRESSURE FILTER OR CHECK VALVE ON THE VENT SIDE (B) INSTALL BLOWOUT DISC ON THE VENT (C) USE A DIFFERENT VALVE LESS SENSITIVE TO CONTAMINATION (D) USE AN EXPLOSIVE OPENING ORIFICE INSTEAD OF THESE VALVES.

LAUNCHER-GSE	TEST/REPORT NUMBER FAILED COMPONENT NAME	OIF DATA SOURCE PART NUMBER	VEHICLE DATE OF TIME DIF	SITE DIF	PAI OTH	VENDOR NAME VENDOR PART NO
	FAR-CT-9B-40-045-C PNEUMATIC PRESSURIZATION TEMPERATURE COMPENSATOR	FAR 7-00279-1	640924 7-00279-1	36A/EIR NO	YES	INTERSTATE 687M6A03

FAILURE MODE-INTERNAL LEAK. THE TEMPERATURE COMPENSATOR REPORTEDLY FAILED WHEN A SLOW INTERNAL LEAK WAS DISCOVERED. THE PART WAS ROUTED TO PLT 19 AND TORN DOWN WITHOUT THE KNOWLEDGE OF CENTAUR RELIABILITY CONTROL. FAILURE ANALYSIS WAIVED BY CENTAUR RELIABILITY CONTROL MEMO DATED 640938.

CORRECTIVE ACTION-NONE.

LAUNCHER-GSE	TEST/REPORT NUMBER FAILED COMPONENT NAME	OIF DATA SOURCE PART NUMBER	VEHICLE DATE OF TIME DIF	SITE DIF	PAI OTH	VENDOR NAME VENDOR PART NO
	FAR-CT-9B-54-048 PNEUMATIC PRESSURIZATION GAS REGULATOR	FAR 630727	126-D 630727	36A/EIR NO	YES	VICTOR EQUIPMENT 687M6A03

FAILURE MODE-OUT OF SPECIFICATION. THE LAUNCH BOOSTER UNIT PNEUMATIC PRESSURE REGULATOR WAS REJECTED BECAUSE IT REQUIRED 2 HOURS TO RAISE SYSTEM PRESSURE TO 2000 PSI. WITH 7000 PSI APPLIED PRESSURE, MAXIMUM TIME ALLOWED TO RAISE SYSTEM PRESSURE IS 0 MINUTES. FAILURE WAS NOT CONFIRMED. CAUSE OF REJECTION WAS NOT FOUND.

CORRECTIVE ACTION-THE BENT TO APPROPRIATE FIELD PERSONNEL INFORMING THEM OF THE RESULTS OF THE ANALYSIS AND REQUESTING SURVEILLANCE BE MAINTAINED IN EVENT OF FURTHER DUPLICATION.

18 JUN 1966

## CONVAIR DIVISION

## DIFFICULTIES REVIEW-LAUNCHER SYSTEM-GSE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	FRI OTH VENDOR PART NO
LAUNCHER-GSE PNEUMATIC PRESSURIZATION	FAR-CT-98-38-003 GAS REGULATOR	FAR N/A 7-00062-009	630716 27-00242-13	36A YES	YES VICTOR EQUIPME NO NT LR208
FAILURE MODE-OUT OF SPECIFICATION. THE PRESSURE REGULATOR FAILED TO MAINTAIN 6250 PLUS OR MINUS 50 PSIG WITH A 1000 PSIG INLET PRESSURE. FAILURE WAS CONFIRMED. FAILURE WAS CAUSED BY LEADED BRASS PARTICLES FOUND ON THE SEATS. THE SEAT RETAINERS AND REGULATOR BODY ARE OF LEADED BRASS THEREFORE IT WAS CONCLUDED THE PARTICLES CAME FROM WITHIN THE REGULATOR AND NOT FROM WITHIN THE SYSTEM.					
CORRECTIVE ACTION-RECOMMENDED VENDOR BE NOTIFIED OF THE RESULTS OF THE ANALYSIS AND TAKE AC CORRECTIVE ACTION TO PREVENT RECURRENT.					
LAUNCHER-GSE PNEUMATIC PRESSURIZATION					
FAILURE MODE-STRUCTURAL. THE TUBE ASSEMBLY, A COMPONENT OF THE LAUNCHER FUEL TANK PRESSURE SENSING INSTALLATION FAILED BECAUSE OF A CRACKED ASSEMBLY SLEEVE. FAILURE WAS CONFIRMED. CRACK WAS CAUSED BY CHEMICAL CORROSION FROM WATER AND CHLORIDES.					
CORRECTIVE ACTION-RECOMMENDED STAINLESS STEEL TUBING AND FITTINGS CORROSION FAILURES AT 36-A BE REVIEWED WITH RESPECT TO (1) REPLACEMENT OF TYPE 304 STAINLESS WITH MONEL OR OTHER CORROSION-RESISTANT MATERIALS. (2) COATING OF PRESENTLY-INSTALLED TUBING (3) ESTABLISHMENT OF A STRICT MAINTENANCE PROGRAM TO PREVENT FAILURES DURING CRITICAL PERIODS.					
LAUNCHER-GSE PNEUMATIC PRESSURIZATION					
FAILURE MODE-ERRATIC OPERATION. THE PNEUMATIC PRESSURE REGULATOR IN THE LAUNCHER BOOSTER UNIT BECAME ERRATIC AND THE SET PRESSURE OF 2050 PSIG DETERIORATED TO 1600 PSIG. FAILURE RESULTED FROM SMALL PARTICLES OF LENT IN THE VALVE.					
CORRECTIVE ACTION-NONE.					
LAUNCHER-GSE PNEUMATIC PRESSURIZATION					
FAILURE MODE-EXTERNAL LEAKAGE. THE PNEUMATIC HO AND R VALVE WITH SOLENOID NUMBER 2 ACTUATED HAD A CONSTANT LEAK FROM THE VENT PORT. ONE OF THE TWO SCREWS HOLDING THE SOLENOID TO THE VALVE BODY WAS SHEARED SO THE SOLENOID COULD NOT MAINTAIN PROPER RELATIONSHIP TO THE POPPET. HAMPERING THE POPPET TRAVEL SUFFICIENTLY TO PREVENT IT FROM SEALING OFF THE VENT PORT.					

15 JUN 1966

GENEVA INSTRUMENTS  
COMMUTA DIVISION

## DIFFICULTIES REVIEW-LAUNCHER SYSTEM-6SE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PDI OTW	VENDOR NAME VENDOR PART NO
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CORRECTIVE ACTION-THE NAMEPLATE WITH THE PART NUMBER, SERIAL NUMBER, ETC WAS MISSING AND THE SUPPORTING PAPERWORK & A/C NO DATA ON THE VALVE. G/C COULD TAKE NO CORRECTIVE ACTION SINCE THERE WAS NO WAY OF DETERMINING WHERE, WHEN OR BY WHOM THE SCREW WAS SHEARED.

LAUNCHER-6SE PNEUMATIC PRESSURIZATION	RA-98-40-297-P HOLDDOWN AND RELEASE CYLINDER SEAL 7-93169-3	FAR 620212 12/ETR NO	620212 12/ETR YES GDC	620212 12/ETR NO	620212 12/ETR YES GDC	600712
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FAILURE MODE-EXTERNAL LEAK. THE CYLINDER WAS LEAKING DURING A CHECKOUT OF THE HOLDDOWN AND RELEASE SYSTEM. THE LEAK AGE IS ATTRIBUTED TO AN IMPROPERLY INSTALLED TEFLON BACKUP RING. DURING ASSEMBLY OF THE HOLDDOWN-AND-RELEASE CYLINDER R, THE TEFLON BACKUP SEAL WAS NOT FULLY BOTTOMED OUT IN ITS RETAINING GROOVE BEFORE THE PISTON WAS INSERTED IN THE CYLINDER HEAD.

CORRECTIVE ACTION-RELIABILITY CONTROL ENGINEERING INITIATED QUALITY-CONTROL CORRECTIVE ACTION BY REQUESTING THAT ASSEMBLY TECHNIQUES FOR THE ASSEMBLY BE REVIEVED TO PRECLOE RECURRENCE OF THIS PROBLEM. BAR A-98-40-708.

LAUNCHER-6SE PNEUMATIC PRESSURIZATION	A-98-40-222F LAUNCH RELEASE SOLENOID	FAR 99-35002-001	620212 12/ETR NO	620212 12/ETR NO	620212 12/ETR NO	600712
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FAILURE MODE-OUT OF TOLERANCE. THE DOUBLE SOLENOID VALVE FAILED WHEN ONE SOLENOID RELEASE PRESSURE 0.10 TO 0.25 SEC CHDS SLOWER THAN THE SECOND SOLENOID. THE VALVE FAILURE IS ATTRIBUTED TO POOR ADJUSTMENT WHICH CAUSED IMPROPER RESPONSE TIMES.

CORRECTIVE ACTION-NONE.

LAUNCHER-6SE PNEUMATIC PRESSURIZATION	AC-98-40-172F SOLENOID VALVE, WIRING	FAR 99-35002-001	620212 12/ETR NO	620212 12/ETR NO	620212 12/ETR NO	600712
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FAILURE MODE-ERRATIC OPERATION. THE SOLENOID VALVE FUNCTIONED IN REVERSE OF THE RELEASE AND CHARGE SIGNALS. MEMORIAL OF THE AMPHENOL CONNECTOR REVEALED THAT THE SOLENOID WIRES HAD BEEN CONNECTED TO THE WRONG PINS AND THAT THE INSULATION WAS STRIPPED FROM THE COMMON WIRE LEADING TO SOLENOID NUMBER 1, SHORTING IT TO THE HOUSING.

CORRECTIVE ACTION-EFFECTIVE 15 MARCH 1962, THE TEST REQUIREMENTS AND THE PERFORMANCE CHECKSHEET WERE REVISED TO INCLUDE CONTINUITY, RESISTANCE, AND PRESSURE CHECKS.

LAUNCHER-6SE PNEUMATIC PRESSURIZATION	FAR-CT-98-40-022F SOLENOID OPERATED VALVE	FAR 620212	620212 12/ETR NO	620212 12/ETR NO	620212 12/ETR NO	600712
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FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. PNEUMATIC NO AND R VALVE WOULD NOT GO INTOCHARGE POSITION BECAUSE THE COIL WAS ELECTRICALLY OPEN. THE FORMVAR INSULATION COATING THE COIL WAS FLAKED AND UNEVEN WHICH RESULTED IN A BU

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## DIFFICULTIES REVIEW-LAUNCHER SYSTEM-GSE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	BITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
	RHT AREA APPROXIMATELY 1/2 INCH LONG OVER 3 TURNS AND THREE WRAPPINGS OF WIRE.					699950
LAUNCHER-GSE PNEUMATIC PRESSURIZATION	AG-98-40-167F SOLENOID VALVE	FAR 98-35002-001	620115	ETR	YES SOUTHWESTERN NO 800774	
	CORRECTIVE ACTION-PERFORMANCE CHECKSHEET USED TO CHECK THE VALVE WAS REVISED TO INCLUDE-CONTINUITY AND RESISTANCE CHECK OF THE RECEPTACLE PINS. INSTALLING PRESSURE GAUGES ON PORTS TO INSURE PRESSURES ARE TRANSMITTED THRU PROPER PORTS WHEN EITHER OR BOTH SOLENOIDS ARE ENERGIZED OR DE-ENERGIZED. INSPECTION IS TO CHECK AND BUYOFF OF THE PROPER POSITIONING OF THE RECEPTACLE ON THE VALVE AND A PROPER SPRING ADJUSTMENT.					
LAUNCHER-GSE PNEUMATIC PRESSURIZATION	AG-98-40-172F SOLENOID VALVE	FAR 98-35002-001	620105	12/ETR	YES SOUTHWESTERN NO	699956
	FAILURE MODE-EXTERNAL LEAKAGE. THE VALVE HAD A LEAK THROUGH THE VENT WHEN THE SOLENOID WAS IN THE ENERGIZED POSITION. FAILURE IS ATTRIBUTED TO CORROSION (ELECTROLYTIC ACTION BETWEEN DISSIMILAR METALS. THE STEEL SPRING AND ALUMINUM WAS WHICH RESTRICTED ACTUATION AND SEATING OF THE POPPET.					
	CORRECTIVE ACTION-NONE.					
LAUNCHER-GSE PNEUMATIC PRESSURIZATION	FAR-CI-28-40-003F SOLENOID VALVE SPRING	FAR	620101	SEA/ETR	YES SOUTHWESTERN NO 800774	699960
	FAILURE MODE-FAIL DURING OPERATION. PNEUMATIC HO AND R VALVE VENTED IN THE CHARGE POSITION BECAUSE THE ADJUSTABLE RETURN SPRING FORCE WAS TOO HIGH TO PERMIT SOLENOID ACTUATION. THE RETURN SPRING FORCE DETERMINES THE SOLENOID ENERGIZATION AND DE-ENERGIZATION REACTION TIME AND THE POPPET SEATING PRESSURE. RETURN SPRING FORCE WAS TOO HIGH BECAUSE OF IMPROPER ADJUSTMENT.					
	CORRECTIVE ACTION-PERFORMANCE CHECK SHEET USED TO CHECK THE VALVE WAS REVISED TO INCLUDE-CONTINUITY AND RESISTANCE CHECK OF THE RECEPTACLE PINS. INSTALLING PRESSURE GAUGES ON PORTS TO INSURE PRESSURES ARE TRANSMITTED THRU PROPER PORTS WHEN EITHER OR BOTH SOLENOIDS ARE ENERGIZED OR DE-ENERGIZED. AND INSPECTION CHECK AND BUYOFF OF THE PROPER POSITIONING OF THE RECEPTACLE ON THE VALVE, AND A PROPER SPRING ADJUSTMENT.					

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OFFICIAL REVIEW-LAUNCH SYSTEM-65

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
LAUNCHER-GSE PNEUMATIC PRESSURIZATION	FAR-C1-98-98-007 RELIEF VALVE, LAUNCHER BOOSTER UNI	FAR	610807 62A/ETR	NO YES HASKELL	NO NO 13418	
LAUNCHER-GSE PNEUMATIC PRESSURIZATION	Failure mode-fail to operate at prescribed time. The relief valve, located in the launcher booster unit, failed to relieve at 7700 psig. Contamination found in the valve was not sufficient to cause the failure but possibly other contamination was dislodged and lost during shipment as the valve was received at GDCIN an unprotected condition.					
LAUNCHER-GSE PNEUMATIC PRESSURIZATION	Corrective action-recommend site be notified of failure and the applicable pressure gage in the launcher booster unit be checked for erratic operation. Also recommend site eng. be notified of possible contamination in the LBU. Request site personnel protect future parts from contamination when forwarding to GDC for failure analysis.					
LAUNCHER-GSE PNEUMATIC PRESSURIZATION	Failure mode-erratic operation. LBU output pressure was cycling due to an unknown cause.					
LAUNCHER-GSE PNEUMATIC PRESSURIZATION	System effect-erratic operation. LBU output pressure was cycling.					
LAUNCHER-GSE PNEUMATIC PRESSURIZATION	Vehicle effect-none.					
LAUNCHER-GSE PNEUMATIC PRESSURIZATION	Corrective action-a solenoid valve was replaced but the problem still remained.					
LAUNCHER-GSE PNEUMATIC PRESSURIZATION	Failure mode-erratic operation. The LBU output pressure was cycling. A solenoid valve was suspect, but replacement did not correct the problem.					
LAUNCHER-GSE PNEUMATIC PRESSURIZATION	System effect-erratic operation.					
LAUNCHER-GSE PNEUMATIC PRESSURIZATION	Vehicle effect-none. A decision was made to go as is.					
LAUNCHER-GSE PNEUMATIC PRESSURIZATION	Corrective action-a solenoid valve was replaced but did not correct the problem.					
LAUNCHER-GSE PNEUMATIC PRESSURIZATION	Failure mode-open (elect). Wiring between bonnet valve microswitches and their connector plus 8 was not completely installed.					
LAUNCHER-GSE PNEUMATIC PRESSURIZATION	System effect-operation does not start.					
LAUNCHER-GSE PNEUMATIC PRESSURIZATION	Vehicle effect-countdown delayed.					

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DIFFICULTIES REVIEW-LAUNCHER SYSTEM-6SE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIR DATA SOURCE PART NUMBER	VEHICLE DATE DIR	SITE TIME DIR	FAIL 0TH	VENDOR NAME VENDOR PART NO
	CORRECTIVE ACTION-MICROSWITCHES JUMPERED IN ORDER TO COMPLETE LADDER IN TCC PRESTART PANEL.					099208
LAUNCHER-GSE PNEUMATIC PRESSURIZATION	ARC-27-081/P2-408-00-08 COMPRESSOR SEAL	COUNTDOWN SD 500608	12/E/TR NO	YES		099202
	FALLURE MODE-STRUCTURAL. THE HASKEL COMPRESSOR BLEW A HYDRAULIC SEAL DURING THE LAUNCH OPERATION.					
	SYSTEM EFFECT-NONE.					
	VEHICLE EFFECT-COUNTDOWN DELAYED.					
	CORRECTIVE ACTION-THE SEAL WAS REPLACED AND THE UNIT WAS USED FOR THE OPERATION.					
LAUNCHER-GSE PNEUMATIC PRESSURIZATION	PTA481/P2-301-00-7 CHECK VALVE	COUNTDOWN TC 500310	12 -7080	YES NO		099456
	FALLURE MODE-LEAK (EXTERNAL). LBU CHECK VALVE HAD A SMALL LEAK RESULTING IN A LOW LBU PRESSURE.					
	SYSTEM EFFECT-OPERATION TOO LOW. LBU PRESSURE WAS LOW DUE TO A LEAKING CHECK VALVE.					
	VEHICLE EFFECT-NONE, NO HOLD.					
	CORRECTIVE ACTION-REPAIR VALVE.					
LAUNCHER-GSE PNEUMATIC PRESSURIZATION	PTA482/P2-301-00-3 PNEUMATIC	PPF 501217	12/E/TR -1620	YES NO		099402
	FALLURE MODE-OUT OF TOLERANCE. B1 CYLINDER WAS 450 PSI HIGH AND B2 CYLINDER PRESSURE WAS 450 PSI LOW. THE CAUSE WAS UNKNOWN.					
	SYSTEM EFFECT-NONE.					
	VEHICLE EFFECT-NONE.					
	CORRECTIVE ACTION-NONE. A DECISION WAS MADE TO GO AS IS.					
LAUNCHER-GSE PNEUMATIC PRESSURIZATION	PTA422/P2-301-00-3 ORIFICE	PPF 501217	12/E/TR 0	YES NO		099217
	FALLURE MODE-FAIL DURING OPERATION. THERE WAS A LARGE MAXIMUM DIFFERENTIAL PRESSURE AFTER DECAY TO 2550 PSI. THIS WAS BELIEVED TO BE THE RESULT OF A DAMAGED B2 CYLINDER ORIFICE.					
	SYSTEM EFFECT-ERRATIC OPERATION.					
	VEHICLE EFFECT-NONE.					

13 JUN 1966

GENERAL DYNAMICS  
CONVAIR DIVISION

## DIFFICULTIES REVIEW-LAUNCHER SYSTEM-MAC

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PMS OTM	VENDOR NAME VENDOR PART NO
						699901
CORRECTIVE ACTION-THE ORIFICE WAS CHANGED.						
LAUNCHER-GSE PNEUMATIC PRESSURIZATION	FT44268/P3-202-00-0 LBU MOTOR	COMPOSITE-FAD/DPL 68 680910 -300	15/EFR NO			699900
FAILURE MODE-FAIL DURING OPERATION. THE MOTOR TO THE LBU COMPRESSOR STOPPED CAUSING INSUFFICIENT HOLD DOWN PRESSURE						
SYSTEM EFFECT-OPERATION TOO LOW. HOLD DOWN AND RELEASE PRESSURE WAS TO LOW.						
VEHICLE EFFECT-COMPOSITE DELAYED. HOLD TIME IS NOT KNOWN.						
CORRECTIVE ACTION-THE LBU COMPRESSOR MOTOR WAS RESTARTED.						
LAUNCHER-GSE PNEUMATIC PRESSURIZATION	FT44268/P3-202-00-06 LAUNCHER BOOSTER UNIT	COUNTDOWN 680910	68	13	-410	YES NO
FAILURE MODE-FAIL DURING OPERATION. LAUNCHER BOOSTER UNIT MOTOR STOPPED OPERATING.						
SYSTEM EFFECT-OPERATION STOPS PREMATURELY. LAUNCHER BOOSTER UNIT STOPPED OPERATING CAUSING LOSS OF SUFFICIENT PRESSURE IN THE MISSILE HOLDDOWN CYLINDERS.						
VEHICLE EFFECT-COUNTDOWN DELAYED. 21 MINUTES HOLD TIME.						
CORRECTIVE ACTION-RESTARTED LBU MOTOR AND OPERATION WAS SATISFACTORY. NO FURTHER ACTION TAKEN.						
VEHICLE EFFECT-COUNTDOWN DELAYED. 21 MINUTES HOLD TIME.						
						699927
LAUNCHER-GSE PNEUMATIC PRESSURIZATION	FT44255/P4-203-00-0 REGULATOR LBU 2000 PMS	COUNTDOWN 680914	68	14	-1000	YES NO
FAILURE MODE-EARATIC OPERATION.						
SYSTEM EFFECT-ERRATIC OPERATION.						
VEHICLE EFFECT-COUNTDOWN DELAYED. 10 MINUTE HOLD.						
CORRECTIVE ACTION-REGULATOR ADJUSTED.						
LAUNCHER-GSE PNEUMATIC PRESSURIZATION	FT44006/P1-208-00-0 REGULATOR LBU 2000 PMS	COUNTDOWN 680718	78	11	-8100	NO NO
FAILURE MODE-OUT OF TOLERANCE. STAND TANKS AND PRESSURIZING OF HIGH PRESSURE AIR FLASK WERE NOT COMPLETED BY PREScribed TIME.						
SYSTEM EFFECT-NONE.						
VEHICLE EFFECT-COUNTDOWN DELAYED. 30 MINUTE HOLD						

15 JUN 1966

GENERAL DYNAMICS  
CORVIAIR DIVISION

## DIFFICULTIES REVIEW-LAUNCHER SYSTEM-68E

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE	VEHICLE	SITE	PMS	VENDOR NAME
		PART NUMBER	DATE DIF	TIME DIF	OTH	VENDOR PART NO
<b>CORRECTIVE ACTION-HOLD TO COMPLETE TASKS.</b>						

LAUNCHER-GSE  
PNEUMATIC PRESSURIZATION  
TRANSDUCER BOSS

FAILURE MODE-EXTERNAL LEAK. THE NEXT HOLDDOWN CYLINDER WAS LOSING PRESSURE THROUGH A LEAK AT THE PRESSURE TRANSDUCE  
a. THIS LEAK CAUSED PRESSURE TO DROP BELOW AN ACCEPTABLE LEVEL.

SYSTEM EFFECT-DEPLETION OF GAS SUPPLY. HOLDDOWN PRESSURE DEGRADED BELOW ACCEPTABLE LIMITS.

VEHICLE EFFECT-COUNTDOWN DELAYED. RECYCLE TIME WAS 111 MINUTES. HOLD TIME WAS 2 HOURS AND 1 MINUTE.

CORRECTIVE ACTION-UNKNOWN.

LAUNCHER-GSE	FTAR579/P2-101-00111 PNEUMATIC PRESSURIZATION COMPRESSOR O-RING	FRF	11A	12/ETR	YES	000957
			580208	-9800	NO	
<b>CORRECTIVE ACTION-UNKNOWN.</b>						

FAILURE MODE-EXTERNAL LEAK. DURING THE PRECOUNT THERE WAS AN O RING FAILURE ON ONE PISTON, THE 9243 PISTON ASSEMBLY  
OF THE COMPRESSOR.

SYSTEM EFFECT-OPERATION TOO LOW. A SERIOUS BLOW-BY RESULTED FROM THE O RING FAILURE.

VEHICLE EFFECT-MODE.

CORRECTIVE ACTION-THE PISTON ASSEMBLY WAS REPAIRED.

LAUNCHER-GSE	574-3-68-24 ELECTRICAL CONTROL	FLIGHT	9001	ETR12	YES	000959
	SWITCH-MOTION		640406	0	NO	
<b>CORRECTIVE ACTION-THE TWO-INCH MOTION SIGNAL WAS NOT GENERATED.</b>						

FAILURE MODE-THE TWO-INCH MOTION SIGNAL WAS NOT GENERATED.

SYSTEM EFFECT-NONE-HOWEVER THE TWO AND EIGHT INCH IMBILICALS WERE EJECTED BY LANYARD BACKUP.  
VEHICLE EFFECT-NONE.

CORRECTIVE ACTION-OPEN-INVESTIGATION IN PROCESS TO DETERMINE CAUSE OF FAILURE AND ACTION TO BE TAKEN.

LAUNCHER-GSE	BLV-98-40-X3336 ELECTRICAL CONTROL	FAR	000108	CX14	NO	AIRSEARCH
	FUEL FILL AND DRAIN VALVE	87-05101-83			YES	SH1094
<b>CORRECTIVE ACTION-OPEN-INVESTIGATION IN PROCESS TO DETERMINE CAUSE OF FAILURE AND ACTION TO BE TAKEN.</b>						

FAILURE MODE-ELECTRICAL SHORT. ELECTRICAL ARCING OCCURRED FROM THE FUEL FILL AND DRAIN VALVE ELECTRICAL CONNECTOR 1  
ON THE CABLE ASSEMBLY ELECTRICAL CONNECTOR AND IS ATTRIBUTED TO ELECTRICAL POWER BEING APPLIED TO THE HARNESS BEFORE  
HARNESS HOOKUP.

18 JUN 1968

## DIFFICULTIES REVIEW-LAUNCHER SYSTEM-GSE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
						680528
LAUNCHER-GSE ELECTRICAL CONTROL	A6-9B-40-187F SOLENOID VALVE, WIRING	FAR 99-36002-001	620309	12/ETR	YES	SOUTHWESTERN NO 800774
						680703
						FAILURE MODE-ERRATIC OPERATION. TWO SOLENOID VALVES OPERATED IN REVERSE OF THE ACTUATING SIGNAL. REMOVAL OF THE AMP HENOL PLUG REVEALED THAT THE LEAD WIRES FROM THE SOLENOIDS WERE WIRED TO THE WRONG PINS AND ALSO HAD BEEN SPLICED BEFORE BEING CONNECTED TO THE PLUG.
						680801
						CORRECTIVE ACTION-EFFECTIVE 15 MARCH 1968. THE TEST REQUIREMENTS AND THE PERFORMANCE CHECK SHEET WAS REVISED TO INC LUDE CONTINUITY, RESISTANCE, AND PRESSURE CHECKS. PLANNING CHANGES WERE MADE TO THE FOLLOWING EFFECT. 1. DISASSEMBLY PERSONNEL SHALL NOT CUT RECEPTACLE LEADS. 2. NO SPLICES WILL BE ALLOWED.
LAUNCHER-GSE ELECTRICAL CONTROL	FAR-CT-9B-40-004F RELAY	FAR	620306	3EA/ETR	YES	CLARK NO 7313
						680840
						FAILURE MODE-OUT OF TOLERANCE. THIS PNEUMATIC SOLENOID OPERATED TIME-DELAY RELAY USED TO ACTUATE THE HYDRAULIC SYSTEM ON THE BOOM. UNABLE TO DELAY CONTACT ACTUATION MORE THAN 6 SECONDS. RELAY FOUND TO BE OUT OF ITS PLUS OR MINUS 10 PCT TOLERANCE AND HAD POOR REPEATABILITY WHEN SUBJECTED TO TESTING.
						680849
						CORRECTIVE ACTION-RELAY WILL BE KEPT UNDER SURVEILLANCE FOR POSSIBLE FUTURE FAILURES. THIS IS THE FIRST FAILURE OF THIS RELAY. FAILURE NOT CONFIRMED.
LAUNCHER-GSE ELECTRICAL CONTROL	AAB1-0123/P2-4C0-03-111 SOLENOID OPERATED VALVE	COMPOSITE-J FACT 810914	1110	12/ETR	YES	
						27-02108-001
						FAILURE MODE-FAIL DURING OPERATION. THERE WAS NO SHUTTLE VALVE CONTROL DURING THE FACT. A DEFECTIVE SOLENOID WAS FOUND IN THE LAUNCHER PURGE BOX.
						SYSTEM EFFECT-ERRATIC OPERATION.
						VEHICLE EFFECT-UNKNOWN.
						CORRECTIVE ACTION-SOLENOID WAS REPLACED.

15 JUN 1966

GENERAL DYNAMICS  
CONVAIR DIVISION

DIFFICULTIES REVIEW-LAUNCHER SYSTEM-68E

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIR DATA SOURCE PART NUMBER	VEHICLE DATE DIR	SITE TIME DIR	PRI OTH	VENDOR NAME PART NO
LAUNCHER-68E ELECTRICAL CONTROL	AAS1-0088/P3-801-00-16 MICROSWITCH	COUNTDOWN 610919	10E 610919	13/E7TR NO	YES NO	688888
	FAILURE MODE-OUT OF TOLERANCE. HOLDDOWN SYSTEM MICROSWITCH IN LOWER LAUNCHER PEDESTAL IN QUAD 3 OUT OF ADJUSTMENT.					
	SYSTEM EFFECT-ERRATIC OPERATION.					
	VEHICLE EFFECT-COUNTDOWN DELAYED. HOLD CALLED TO ADJUST MICROSWITCH AND REMOVE SQUIB AND CABLE FROM SCIENTIFIC PASS ENER PDU. TOTAL HOLD TIME WAS 50 MINUTES.					
	CORRECTIVE ACTION-THE MICROSWITCH WAS ADJUSTED.					
LAUNCHER-68E ELECTRICAL CONTROL	AAS1-0088/P3-801-00-16 MICROSWITCH	COUNTDOWN 610919	10E 610919	13 NO	YES NO	688888
	FAILURE MODE-OUT OF EXPECTED TEST VALUE. LAUNCHER HOLDDOWN SYSTEM MICROSWITCH ON LOWER LAUNCHER PEDESTAL IN QUAD 3 OUT OF ADJUSTMENT.					
	SYSTEM EFFECT-OPERATION DOES NOT START. LAUNCHER RELEASE SYSTEM WOULD NOT OPERATE.					
	VEHICLE EFFECT-COUNTDOWN DELAYED. COUNTDOWN DELAYED TO ADJUST MICROSWITCH.					
	CORRECTIVE ACTION-ADJUST MICROSWITCH.					
LAUNCHER-68E ELECTRICAL CONTROL	F1A6178/P2-301-00-09 PRESSURE SWITCH, LBU 7000 LB BOTTLE E	COUNTDOWN 680924	9C 680924	12/E7TR -3000	YES NO	688888
	FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. THE PRESSURE SWITCH IN THE LBU 7000 POUND BOTTLE WOULD NOT CYCLE.					
	SYSTEM EFFECT-OPERATION TOO HIGH.					
	VEHICLE EFFECT-NONE.					
	CORRECTIVE ACTION-IT WAS DECIDED TO SECURE THE PRESSURE AT THE PRESENT PRESSURE LEVEL IF THE SWITCH COULD NOT BE FIXED. FINAL FIX UNKNOWN.					

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**LAUNCH CONTROL SYSTEM  
GSE  
DIFFICULTIES REVIEW**

DIFFICULTIES REVIEW LAUNCH CONTROL GSE  
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GENERAL DYNAMICS  
COMMERCIAL DIVISION

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GÖTTSCHE-LEHMANN CONSTRUCTION

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	QTR DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PMS OTH	VENDOR NAME VENDOR PART NO
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LUNCH CONTROL-6SE  
TEST CONDUCTORS CONSOLE  
FAN-CT-98-460-038  
TIMER: RECTIFIER

FAILURE MODE-ELECTRICAL SHORT. THIS IS AN ELECTRONIC TIMER USED IN THE ENGINE CUTOFF CIRCUIT OF THE TEST CONDUCTOR CONSOLE. THE FAILURE WAS CONFIRMED. A SILICON CONTROLLED RECTIFIER WAS FOUND TO BE ANODETED.

CC INFFECTIVE ACTION-TIME BEFORE AND AFTER WAS MORE SO WITHIN 25 MINUTES

FAILURE MODE-ERRATIC OPERATION-SWITCH #6 (LOX LOAD PROPERLY IN THE NORMAL POSITION. THE TANKING OPERATION WAS COMPLETED WITH THE SWITCH IN THE TEST POSITION. LOX LOAD IMMEDIATELY BECAME HIGH DUE TO THE INTEGRITY OF THE LOX LINE BEING COMPROMISED.

SYSTEM EFFECT-MODE.

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LAUNCH CONTROL-68  
TEST COMMANDER  
DATA  
AASA-0063/P6-CO-01-QACA  
COMPOSITE-J FACT  
1400  
SEA/ETH NO  
66907

FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. DUE TO A PROCEDURAL ERROR. THE PAD SAFETY OFFICER WAS NOT ON STATION.

SYSTEM EFFECT-OPERATION DOES NOT START. THE HOLD TIME TEST COMING FROM THE PULSE GENERATOR IS 10 SECONDS SO A RANGE READJUSTMENT IS

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FAILURE MODE-FAIL DURING OPERATION. THIS IS RELAY K65 IN THE TEST CONDUCTOR'S CONSOLE. THE RELAY COULD NOT BE ADJUSTED TO STAY OPEN DUE TO THE POSITION OF THE CONTACTS.

**DIRECTIVE** - IT WAS RECOMMENDED THAT THE VENDOR CONSIDER CHANGING SOURCE-CURRENT CONDITIONS TO BE COMPATIBLE WITH CONTACTS. IT WAS ALSO RECOMMENDED THAT SOC SEE IF THEY CAN MAKE A COMPATIBLE SOURCE CURRENT.

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DIFFICULTIES REVIEW-LAUNCH CONTROL-688

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENOR NAME VENOR PART NO
♦ CONFIRMED.						
LAUNCH CONTROL - SSE TEST CONDUCTORS CONSOLE	AABD-0008PA-401-0079 LAUNCH CONTROL RELAY	COUNTDOWN	790 600915	14 -1.	TEB NO	600915

FAILURE MODE-ERRATIC OPERATION. DURING AN ATTEMPTED LAUNCH AND AFTER ENGINES TRANSITION TO MAINSTAGE, THE LAUNCH CONTROL RELAY WHICH PROVIDES A SIGNAL OF INTERNAL PNEUMATICS READY, DEACTIVATED AND OPENED PREVENTING RELEASE OF THE VEHICLE. RELAY DEACTIVATED DUE TO AN INDUCTIVE VOLTAGE ON THE GROUND WIRE WHICH IS A FLOATING GROUND AT THIS TIME.

SYSTEM EFFECT-ERRATIC OPERATION. RELAY WAS ACTIVATING AND DEACTIVATING INTERMITTENTLY AND CAUSING THE SAME ACTION OF THE PRE-RELEASE CUTOFF DISARM RELAY. RELEASE OF THE VEHICLE WAS PREVENTED SINCE THIS RELAY KEPT STARTING THE PRE-AEROSPACE TURBINE ENGINE AT TIMED EXPLOSIONS.

**VEHICLE EFFECT-PREMATURE PROPELLION SHUTDOWN.** ALL ENGINES WERE SHUT DOWN BY THE ENGINE CUTOFF TIME AT WHICH RELEASE HAD BEEN TAKEN PLACE.

REPRODUCTION OR RESALE OF THIS PAGE IS NOT PERMITTED.

099955  
LAUNCH CONTROL-6SE  
TEST CONDUCTORS CONSOL  
FTA4581/PZ-38N-06-3  
RELAY  
COMPOSITE-J FACT  
3C  
961212 -71  
YES  
NO

FAILURE MODE-PREMATURE OPERATION. THE MISSILE PREP COMPLETE LIGHT ON THE TEST CONDUCTOR'S CONSOLE CAME ON PRIOR TO 15 SCHEDULED TIME. THIS OCCURRED BECAUSE RELAY K19 IN THE CONSOLE WAS LOCKED IN.

VETTA EDITION - L'ESPRESSO DI KURTIE MELVILLE

RECYCLE ONE MINUTE OF WORD AND A MINUTE RECYCLE FIVE

**601866**

**CORRECTIVE ACTION - THE RELAY WAS UNLOCKED BY PROGRAMMING A CUTOFF SIGNAL.**

LAUNCH CONTROL-6SE	PTA 4591/PZ-38N-08-3	COMPOSITE-J FACT	IC SG1812	12 -35	YES NO
TEST CONDUCTORS CONSOLE	WIRING				

FAILURE MODE-OUT OF SPECIFICATION. A JUMPER HAD BEEN PLACED IN SUCH A MANNER THAT THE VERNIER PROPELANT VALVES OPENED WHEN THE TEST-OFF-ARM SWITCH ON THE TEST CONDUCTOR'S CONSOLE WAS PLACED IN EITHER THE TEST OR ARM POSITION.

SYSTEM EFFECT-IMPROPER DISCRETE SIGNALS. THE VERNIER FROPELLANT VALVE WERE BEING COMMANDED OPEN BY THE TEST-OFF-AN M SIGNAL ON THE TEST CONDUCTOR CONSOLE.

VERMONT STATE BOARD OF EDUCATION  
123-320803-133-144

**CORRECTIVE ACTION-THE JUNIOR WAS REMOVED.**

18 JUN 1986

GENERAL DYNAMICS  
CONVAIR DIVISION

DIFFICULTIES REVIEW-LAUNCH CONTROL-GSE

SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI CIP	OTH	VENDOR NAME VENDOR PART NO
BUS-SYSTEM							

LAUNCH CONTRACTOR CONSOLE FTAGS11/PB-38N-0a-2

TEST CONDUCTOR'S CONSOLE MAINING

FAILURE MODE-ELECTRICAL OPEN. THE TEST CONDUCTOR'S CONSOLE WAS NOT COMPLETELY WIRED. AS A RESULT, THE RANGE-READY NO LD-FIRE TEST COULD NOT BE COMPLETED.

SYSTEM EFFECT-IMPROPER DISCRETE SIGNALS.

VEHICLE EFFECT-COUNTDOWN DELAYED

CORRECTIVE ACTION-THE CONSOLE WIRING WAS COMPLETED.

**PNEUMATIC SYSTEM  
GSE  
DIFFICULTIES REVIEW**

DIFFICULTIES REVIEW GSE

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18 JUN 1968

## DIFFICULTIES REVIEW-PNEUMATIC SYSTEM-6SE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE	SITE DIF TIME	PRI OTH	VENDOR NAME VENDOR PART NO
PNEUMATIC-6SE LINE SUPPLY	EDC/BKPG-010 SWITCH	COUNTDOWN 650223	2010 A-3	YES NO		688409

FAILURE MODE-FAILED TO OPERATE AT PRESCRIBED TIME. THE OPEN MICROSWITCH ON VALVE LN-83 (LNG FINE LOAD VALVE) FAILED TO INDICATE THE VALVE WAS OPEN AND RESULTED IN A LINE NOT OPEN INDICATION ON THE LAP.

SYSTEM EFFECT-OPERATION STOPPED PREMATURELY.

VEHICLE EFFECT-COUNTDOWN DELAYED.

CORRECTIVE ACTION-MICROSWITCH WAS ADJUSTED.

PNEUMATIC-6SE	DA817/A1-410-04-159 SUSTAINER	COMPOSITE-FRO/DPL 621023	1590 A-1	YES NO	688409
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FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. MICRO SWITCH FAILED TO INDICATE THAT HG BOOSTER IF/ME LOADING VALVE WAS CLOSED.

SYSTEM EFFECT-FAIL TO OPERATE AT PRESCRIBED TIME. MICRO SWITCH FAILURE DID NOT ALLOW BOOSTER HELIUM BOTTLES TO VENT AT PROPER TIME DURING FUEL DRAIN. OPERATION STARTS TOO LATE.

VEHICLE EFFECT-NONE.

CORRECTIVE ACTION-SWITCH ADJUSTED AND CHECKED OUT PRIOR TO LAUNCH.

PNEUMATIC-6SE	AEG2-0729/03-404-00-06 CONTROLLER	COUNTDOWN 620605	BD SS	YES NO	688409
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FAILURE MODE-OUT OF SPECIFICATION. HELIUM LINE PRESSURE SUPPLIED FROM THE GROUND WAS TOO HIGH.

SYSTEM EFFECT-OPERATION TOO HIGH.

VEHICLE EFFECT-COUNTDOWN DELAYED.

CORRECTIVE ACTION-CONTROLLER REPLACED.

PNEUMATIC-6SE	AEG2-0316/03-401-00-182 UNKNOWN	COUNTDOWN 620411	1200 B-3	YES NO	688416
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FAILURE MODE-FAILED TO OPERATE AT PRESCRIBED TIME. THERE WAS A 20 SECOND DELAY AFTER COMMIT START BEFORE P.C.U. SITE PRED TO PHASE III PRESS.

SYSTEM EFFECT-NONE.

VEHICLE EFFECT-COMPOSITE DELAYED.

CORRECTIVE ACTION-NONE.

15 JUN 1968

## DIFFICULTIES REVIEW-PNEUMATIC SYSTEM-65E

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR MARK: VENDOR PART NO
PNEUMATIC-65E	AAS1-0158/P2-404-00-117 VALVE-SOLENOID OPERATED	COUNTDOWN 611110	1170 -1800	12 NO	YES	699364
	FAILURE MODE-FAIL DURING OPERATION-LN2 SHROUD COOLING SYSTEM VALVE 7 FROZEN.					
	SYSTEM EFFECT-ERRATIC OPERATION-VALVE WOULD NOT OPERATE. FAILURE TO LOAD LN2 ON MISSILES.					
	VEHICLE EFFECT-COUNTDOWN DELAYED-4 MINUTES.					
	CORRECTIVE ACTION-VALVE FREED BY CYCLING.					
PNEUMATIC-65E SUSTAINER	90-08-135 HELIUM PRESSURIZATION PANEL ASSY	FAN 2T-00064-10	32D 391200	WTR NO	YES	699364
	FAILURE MODE-CONTAMINATION. PANEL FAILED DURING TEST PROCEDURE VTP-F-009 WHEN IT DID NOT CHECK COMPLETELY FOR 2 CYCLES DURING SLOWDOWN AS AMBIENT BOTTLE VALVE FAILED TO CHECK. FAILURE RESULTED FROM CONTAMINATION WAS LOOGED UNDER POPEET SEAT.					
	CORRECTIVE ACTION-TEST PROCEDURE VTP-F-009 REPLACED BY PROCEDURE 2T-47309-1 ON 13 NOVEMBER 1959 ON COMPLEX 65-2. AT COMPLEX 65-1 PROCEDURE REPLACED WITH T. 0-21-SM65P-11-2-15. THESE PROCEDURES CONTAIN PURGE INSTRUCTIONS FOR A/B HELIUM SYSTEM TO REDUCE CONTAMINATION LEVEL. MISSILE 330 AND ON DO NOT HAVE SOLENOID OPERATED CHECK VALVES.					
PNEUMATIC-65E LN2 SUPPLY	92-08-126 MOTOR OPERATED HELIUM VALVE 2T-08116-9	FAN 2T-08116-9	391000 NO	WTR 10K	YES	699400
	FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. TWO VALVES FAILED TO OPEN ON COMMAND. FAILURE RESULTED FROM TWO TELEFLON WASHERS EXTRUDING INTO MICROSWITCH CAM SLOT AND ARMATURE BRUSHES DUE TO VALVE OVERTRAVEL (CAUSE NOT DETERMINED).					
	CORRECTIVE ACTION-MODIFICATION OF VALVES EFFECTIVE AUGUST 1959 CONSISTED OF CHANGING ADJUSTING SET SCREW TO A LOCKIT 11E NYLON PLUG TO BE IMBEDDED IN THE ADJUSTING THREADS TO MAKE A POSITIVE LOCK.					
PNEUMATIC-65E BOOSTER	EH1330/P4-401-00-10 TUBING HYDRAULIC PRESSURE GAGE	FRF 590901	100 -1800	14 NO	YES	
	FAILURE MODE-EXTERNAL LEAK. A PRESSURE GAGE LINE ON A HELIUM COMPRESSOR HAS FOUND TO BE LEAKING DURING A HOLD FOR 1 METALLIC SEARCH LIGHTS.					
	SYSTEM EFFECT-CONTAMINATION. HYDRAULIC FLUID LEAKAGE WAS CAUSING POSSIBLE FIRE HAZARD IN THE HELIUM COMPRESSOR AREA					
	VEHICLE EFFECT-COUNTDOWN DELAYED. COUNTDOWN WAS FURTHER DELAYED WHILE THE LEAKAGE WAS BEING CORRECTED.					

GENERAL DYNAMICS  
CONVAIR DIVISION

13 JUN 1968

DIFFICULTIES REVIEW-PNEUMATIC SYSTEM-GSE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO	
PNEUMATIC-GSE BOOSTER	EM1330/P4-401-00-10 PRESSURIZATION COMPRESSOR	FRT	100 590901	14 -2100	YES NO	699393	699393
CORRECTIVE ACTION-LEAKING LINE WAS REPLACED.							
FAILURE MODE-ERATIC OPERATION. ONE OF THE GROUND HELIUM PRESSURIZATION COMPRESSORS WAS FOUND TO BE OPERATING IMPROPERLY DURING FLIGHT READINESS FIRING TEST COUNTDOWN.							
SYSTEM EFFECT-OPERATION TOO LOW. THE AIRBORNE HELIUM BOTTLES COULD NOT BE PRESSURIZED TO THE CORRECT LEVEL BY THE GROUND COMPRESSORS.							
VEHICLE EFFECT-COUNTDOWN DELAYED. THE COUNTDOWN WAS DELAYED 110 MINUTES WHILE THE DEFECTIVE COMPRESSOR WAS REPLACED.							
CORRECTIVE ACTION-COMPRESSOR REPLACED.							
PNEUMATIC-GSE LN2 SUPPLY	9A-08117 GROUND BREAKAWAY DISCONNECT VALVES 7-08285-#01	FAR	590600	EDWARDS YES ROBERTSHAW FUL NO TON	699441		
FAILURE MODE-LEAK EXTERNAL AT MATING SEAL DURING NORMAL OPERATION. LEAKAGE RESULTED FROM WRONG ASSEMBLY AT MATING SEAL AND WASHER.							
CORRECTIVE ACTION-INCREASED QUALITY CONTROL INSPECTION AT GD/C AND VENDOR.							
PNEUMATIC-GSE LN2 SUPPLY	9A-08-117 GROUND BREAKAWAY DISCONNECT VALVES 7-08225-5	FAR	590600	EDWARDS YES ROBERTSHAW FUL NO TON	699441		
FAILURE MODE-LEAK-EXTERNAL AT MATING SEAL DURING NORMAL OPERATION. LEAKAGE RESULTED FROM WRONG ASSEMBLY OF MATING SEAL AND WASHER.							
CORRECTIVE ACTION-INCREASED QUALITY CONTROL INSPECTION AT GD/C AND VENDOR.							
PNEUMATIC-GSE	PTA2382/P4-102-00-12	COUNTDOWN	12A 57121T	14 -4500	YES NO	699451	
FAILURE MODE-LEAK-INTERNAL-LEAK AT THE COMPRESSOR WHICH PRESSURIZES THE GROUND HELIUM STORAGE TANK							
SYSTEM EFFECT-OPERATION DOES NOT START. GROUND LOADING SYSTEM WAS UNABLE TO LOAD HELIUM ON THE VEHICLE.							
VEHICLE EFFECT-COUNTDOWN DELAYED. 33 MIN HOLD.							
CORRECTIVE ACTION-REPAIR LEAK AT COMPRESSOR.							

15 JUN 1966

DIFFICULTIES REVIEW-PNEUMATIC SYSTEM-GSE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIS DATA SOURCE PART NUMBER	VEHICLE DATE DIS	SITE TIME DIS	PRI OTH	VENDOR NAME VENDOR PART NO
PNEUMATIC-GSE GROUND PRESSURIZATION	SLV-98-08-3247 TUBING	FAR 27-91503-23	660300	CX13	YES NO	GD/C MIL-Y-6848
FAILURE MODE-CONTAMINATION. THREE SPECIMENS OF TUBING USED IN THE STRETCH SLING SYSTEM WERE FOUND TO BE CORRODED. SYSTEM OPERATES AT 160 PSIG PNEUMATIC PRESSURE.						
CORRECTIVE ACTION-FAILURE ANALYSIS HAS RESTRICTED TO METALLURGICAL EVALUATION OF TUBE MATERIAL AND CHEMICAL ANALYSIS OF TUBE COMPOSITION. FAILURE WAS DUE TO MARINE ATMOSPHERE AND SUSCEPTIBILITY OF TYPE 304 STAINLESS STEEL TO STRESS CORROSION IN A MARINE ATMOSPHERE. A CHANGE TO TYPE -316 CRES WAS PROPOSED TO GSD AND WAS NOT APPROVED BECAUSE OF THE FOUR-YEAR LIFE EXPECTANCY OF THESE TUBES AND BECAUSE THESE TUBES ARE INSPECTED AFTER EACH LAUNCHING. NO FURTHER ACTION TO BE TAKEN. THIS ACTION DOCUMENTED IN MEMO OF 12 MAY 1966 FROM RELIABILITY TECHNICAL REQUIREMENTS GROUP.						
PNEUMATIC-GSE GROUND PRESSURIZATION	CT-98-380-125 SOLENOID VALVE/U-RING	FAR 55-02961-1	690619	368	YES NO	MAROTTA 806134
FAILURE MODE-EXTERNAL LEAK. SOLENOID VALVE LEAKED GASEOUS NITROGEN FROM BODY VENT HOLE. LEAKAGE CAUSED BY POPPET ASSEMBLY O-RING HAVING UNFILLED SECTION ON INNER CIRCUMFERENCE. DAMAGE TO O-RING APPARENTLY RESULTED FROM EXTRUSION BETWEEN THE BORE AND A TOO-SHORT TEFLON BACKUP RING WHEN PRESSURE APPLIED TO VALVE. O-RING AND BACKUP RING WERE INSTALLED BY VENDOR.						
CORRECTIVE ACTION-REQUESTED THAT VENDOR EXAMINE O-RINGS AND REJECT THOSE WITH VOIDS, AND THAT BACKUP RINGS BE VISUALLY EXAMINED AFTER INSTALLATION TO CHECK FOR CORRECT LENGTH.						
PNEUMATIC-GSE GROUND PRESSURIZATION	A1-4HO-01-21 PRESSURE SWITCH	COMPOSITE-FRODPL	210D	A-1	NO NO	690400
FAILURE MODE-FAILED TO OPERATE AT PRESCRIBED TIME. PCU PRESSURE SWITCH/FUEL TANK PRESSURE GREATER THAN 17 PSIG FAIL TO TC OPERATE.						
SYSTEM EFFECT-HOME.						
VEHICLE EFFECT-COUNTDOWN DELAYED. LOX CHILDDOWN COULD NOT BE INITIATED.						
CORRECTIVE ACTION-POST TEST INVESTIGATION REVEALED THAT SWITCH WAS PNEUMATICALLY DISCONNECTED. THE SWITCH WAS CONNECTED PROPERLY. KCA						
PNEUMATIC-GSE GROUND PRESSURIZATION LN2 SUPPLY	AS-4HO-01-100		300-D	A2	NO NO	641021
FAILURE MODE-FAIL DURING OPERATION, GSE PRESSURE SWITCH 17 FAILED DURING THE HELIUM LOADING SEQUENCE.						

GENERAL DYNAMICS  
CONVAIR DIVISION

19 JUN 1966

## DIFFICULTIES REVIEW-PNEUMATIC SYSTEM-GSE

SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO	
SUB-SYSTEM							698409
SYSTEM EFFECT-OPERATION STOPS PREMATURELY. HELIUM LOADING STOPPED PREMATURELY.							
VEHICLE EFFECT-COUNTDOWN DELAYED.							
CORRECTIVE ACTION-GSE SWITCH P/S 17 (LN2 STORAGE TANK) REPLACED.							
PNEUMATIC-GSE GROUND PRESSURIZATION	A1-4MO-01-233 PRESSURE SWITCH	COMPOSITE-FRD/DPL 631112	2330 631112	A-1 NO	NO NO		698492
FAILURE MODE-OUT OF TOLERANCE. GSE LOX TANK PRESSURE SWITCH WAS INDICATING TOO HIGH TO ALLOW FUEL DRAIN TO BE COMPLETED.							
SYSTEM EFFECT-NONE.							
VEHICLE EFFECT-COUNTDOWN DELAYED. FUEL DRAIN SEQUENCE STOPPED PREMATURELY.							
CORRECTIVE ACTION-GSE SWITCH RECALIBRATED.							
PNEUMATIC-GSE GROUND PRESSURIZATION	SP-9B-58-3556 PRESSURE SWITCH	FAR	631017 NO 920-20L	13	YES MELETRON NO 920-20L		698559
FAILURE MODE-FAILED DURING OPERATION. SWITCH FAILED WHEN IT WOULD NOT RESET BELOW 40 PSIG. FAILURE WAS NOT CONFIRMED. D. PCU PRESSURE SWITCH SETTINGS LISTED IN 27-02310 DID NOT AGREE WITH PRESSURE SWITCH SETTINGS IN 27-93417, BOOK 3.							
CORRECTIVE ACTION-DRAWING CHANGE A TO 27-02310 CALIBRATION DATA FOR PCU WAS RELEASED SEPTEMBER 23, 1963 CHANGING THE PCU PRESSURE SWITCH SETTINGS TO AGREE WITH THE CORRECT SETTING IN GROUND PNEUMATIC CHECKOUT PROCEDURE 27-93417, BOOK 3.							
PNEUMATIC-GSE GROUND PRESSURIZATION	A1-4MO-03-232 PRESSURE SWITCH	COMPOSITE-FRD/DPL 631011	2320 631011	A-1 NO	NO NO		698494
FAILURE MODE-OUT OF TOLERANCE. COMMUTATOR STOP OCCURRED DUE TO A FALSE LOX TANK PRESSURE HIGH. INDICATION FROM A GSE SWITCH.							
SYSTEM EFFECT-IMPROPER DISCRETE SIGNALS. THE PCU WENT INTO EMERGENCY.							
VEHICLE EFFECT-COMPOSITE ABORTED.							
CORRECTIVE ACTION-GSE SWITCH RECALIBRATED.							

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
PNEUMATIC-GSE GROUND PRESSURIZATION	62-4HO-63 PRESSURE CONTROL UNIT	COMPOSITE-FRO/DPL 630023	63D	82	YES	NO
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. PCU FAILED TO STEP LOX TANK TO FLIGHT PRESSURE DURING THE COMMIT SEQUENCE.						
SYSTEM EFFECT-OPERATION DOES NOT START. COMMIT SEQUENCE TERMINATED.						
VEHICLE EFFECT-DPL COMPOSITE DELAYED.						
CORRECTIVE ACTION-UNKNOWN.						
PNEUMATIC-GSE GROUND PRESSURIZATION	FAR-CT-9B-56-C16 SOLENOID VALVE	FAR	126D 630715	36A	YES AUTOMATIC NO 11-147-0097005	688677

FAILURE MODE FAIL TO OPERATE AT PRESCRIBED TIME. PCU FAILED TO STEP LOX TANK TO FLIGHT PRESSURE DURING THE COMMIT SEQUENCE.

AVARIS EFFECT-OPERATION DOES NOT START - COMMUTATOR SEQUENCE TERMINATED.

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## GROUND PRESSURIZATION

FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. ATTRIBUTED TO LACK OF COMPATIBILITY BETWEEN VALVE DESIGN AND THE I

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PNEUMATIC-GSE  
GROUND PRESSURIZATION

FAR-CT-98-58-007 SOLENOID VALVE	FAR	1260 630703	38A	YES AUTOMATIC NO	690677
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FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. THE SOLENOID VALVE FAILED TO PERMIT LOX TANK ULLAGE PRESSURE TO RISE FROM 15 TO 30 PSIG IN THE REQUIRED 5.5 SECONDS. FAILURE CONFIRMED AND ATTRIBUTED TO LACK OF COMPATIBILITY BETWEEN VALVE DESIGN AND THE IN-SERVICE MEDIUM, HELIUM, MAKING THE PISTON BLEED-BY RATE AND PROPER VALVE OPERATION UNPREDICTABLE.

CORRECTIVE ACTION-RECOMMENDED REPLENISHMENT OF THE VALUE WITH A MORE SUITABLE UNIT.

PNEUMATIC-GSE	FAR-CT-92-58-064	FAR	630604	36A	YES CIRCLE SEAL NO DOPH/422A013
GROUND PRESSURIZATION	RELIEF VALVE, POPPET				

FAILURE MODE-FAIL TO CEASE OPERATION AT PRESCRIBED TIME. THE PNEUMATIC RELIEF VALVE VENTS HELIUM WHEN THE SUPPLY PRESSURE TO THE PCU RISES ABOVE 1700 PSIG. VALVE FAILED TO RESET AFTER CRACKING. FAILURE WAS CONFIRMED. THE POPPET AND A GUIDE AREA WERE CALLED BECAUSE CLEARANCE BETWEEN THE POPPET AND THE HOUSING WAS TOO SMALL RESULTING IN STAINLESS STEEL MOVING AGAINST STAINLESS STEEL OR FOREIGN MATERIAL JAMMED BRIEFLY BETWEEN THE POPPET AND ITS HOUSING.

CORRECTIVE ACTION-RECOMMENDED VENDOR BE INFORMED OF THE ELLIPTICAL SHAPE OF THE POPPET AND THE RESULTING FAILURE AND REQUEST VENDOR TO MAKE AN ACCURACY AND TOOLING MAINTAINED. APPROPRIATE FIELD PERSONNEL SHOULD MAKE SURE C

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CONVAIR DIVISION

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## DIFFICULTIES REVIEW-PNEUMATIC SYSTEM-GSE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	BITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
PNEUMATIC-GSE GROUND PRESSURIZATION	FAR-CT-98-59-056 RELIEF VALVE, SEAL	FAR	630531	36A	YES CIRCLE SEAL NO	515BT1-1467B-17 GOMFI/612A03
<b>CONTAMINANTS FROM CALLED AREA DO NOT CONTAMINATE THE SYSTEM.</b>						
PNEUMATIC-GSE GROUND PRESSURIZATION	FAILURE MODE-FAIL DURING OPERATION. THE PNEUMATIC RELIEF VALVE VENTS HELIUM WHEN THE SUPPLY PRESSURE TO THE PCU RIS ES ABOVE 1700 PSIG. VALVE FAILED TO RESEAT AFTER CRACKING. FAILURE CONFIRMED. CAUSED BY SLIGHT AMOUNT OF COLD FLOW PLUS CONTAMINATION ON THE SEAL. THE SEAL MATERIAL WAS MARGINAL IN RELATION TO NOMINAL STANDARDS SET FOR THIS TYPE MATERIAL.					
PNEUMATIC-GSE GROUND PRESSURIZATION	CORRECTIVE ACTION-RECOMMENDED VENDOR BE NOTIFIED OF THE CONDITION OF THE SEAL MATERIAL AND REQUESTED SEAL STOCK BE EXAMINED TO PRECLUDE USE OF MARGINAL OR BELOW STANDARD STOCK. APPROPRIATE FIELD PERSONNEL BE INFORMED OF THE CONTAMINATION AND REQUESTED CHECK OF SYSTEM FILTERS AND TAKE NECESSARY ACTION TO INSURE SYSTEM CLEANLINESS.					
PNEUMATIC-GSE GROUND PRESSURIZATION	FAR-CT-98-59-056 RELIEF VALVE POPPET	FAR	116D 630529	36A 3	YES CIRCLE SEAL NO	P33-344/612A01
PNEUMATIC-GSE GROUND PRESSURIZATION	FAILURE MODE-OUT OF TOLERANCE. THE PNEUMATIC RELIEF VALVE VENTS SUPPLY PRESSURE TO THE PCU. IT FAILED BECAUSE IT COULD NOT BE ADJUSTED TO THE CORRECT CRACKING PRESSURE. FAILURE WAS CONFIRMED. THE POPPET WAS SHEARED AND THE POPPET WAS DE SCORED. CAUSE OF FAILURE COULD NOT BE DETERMINED.					
PNEUMATIC-GSE GROUND PRESSURIZATION	CORRECTIVE ACTION-RECOMMENDED THAT THE VENDOR BE INFORMED OF THE FAILURE AND REQUEST VENDOR INVESTIGATE ASSEMBLY AND INSPECTION PROCEDURES TO LOCATE ANY AREA WHICH MIGHT CAUSE THIS TYPE FAILURE.					
PNEUMATIC-GSE GROUND PRESSURIZATION	AD63-0066/DA922/L2-4HO-03-119	COMPOSITE-FRD/DPL SWITCH	630426	1-2	YES NO	630407
PNEUMATIC-GSE GROUND PRESSURIZATION	FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. PCU MICROSWITCH ACTIVATION FAILURE PREVENTED SENDING THE CLOSING COMMAND TO AIRBORNE CHANGEOVER VALVE AT COMMUT STOP.					
PNEUMATIC-GSE GROUND PRESSURIZATION	SYSTEM EFFECT-DEPLETION OF GAS SUPPLY. AIRBORNE HELIUM SUPPLY VENTED THROUGH THE LOX AIRBORNE REGULATOR AND SOLE-OF F VALVE.					
PNEUMATIC-GSE GROUND PRESSURIZATION	VEHICLE EFFECT-COMPOSITE DELAYED.					
PNEUMATIC-GSE GROUND PRESSURIZATION	CORRECTIVE ACTION-PCU MICROSWITCH READJUSTED AND AIRBORNE LOX REGULATOR WAS REPLACED.					
PNEUMATIC-GSE GROUND PRESSURIZATION	AD63-0066/DA922/L2-4HO-02-119 INFLIGHT HELIUM VENT VALVE	COMPOSITE-FRD/DPL	118C 630423	1-2	YES NO	
FAILURE MODE-FAIL DURING OPERATION. INFLIGHT HELIUM VENT VALVE IN GROUND SYSTEM OPENED MOMENTARILY AFTER COMMUTATO R.						

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DIFFICULTIES REVIEW-PNEUMATIC SYSTEM-GSE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	OIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
						699900

SYSTEM EFFECT-DEPLETION OF GAS SUPPLY. INFILIGHT HELIUM BOTTLES ON MISSILE DECAYED 400 PSIG.

VEHICLE EFFECT-COMPOSITE ABORTED AND RESCHEDULED.

CORRECTIVE ACTION-UNKNOWN.

PNEUMATIC-GSE GROUND PRESSURIZATION	LNSC-BD40277/PZ-4BN-01-219 REGULATOR	COMPOSITE-FRD/DPL 620927	215D	12	YES NO	699900
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FAILURE MODE-FAIL DURING OPERATION. THE POWER REACTOR REGULATOR WHICH REGULATES PRESSURE TO THE LOZ STORAGE TANK WAS ALLOWING A CONTINUOUS DECAY IN STORAGE TANK PRESSURE DURING THE TANKING TEST.

SYSTEM EFFECT-DEPLETION OF GAS SUPPLY. LOZ STORAGE TANK PRESSURE WAS DECAYING CONTINUOUSLY DURING THE TANKING.

VEHICLE EFFECT-NONE.

CORRECTIVE ACTION-THE REGULATOR WAS REPLACED.

PNEUMATIC-GSE GROUND PRESSURIZATION	FAR-A-9B-90-3397 VALVE	FAR	620810	12	YES A.W. CASH NO #138001	699761
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FAILURE MODE-ERRATIC OPERATION. THE DIAPHRAGM VALVE FAILED TO PROPERLY PORT THE INSTRUMENT AIR FROM THE SEQUENCE 1-2 CONTROLLER. VALVE SEAT AND SYSTEM CONTAMINATION IN THE FORM OF TRANSIENT PARTICLES COULD HAVE CAUSED THE FAILURE.

CORRECTIVE ACTION-COGNIZANT SITE PERSONNEL INFORMED OF THE UNCONFIRMED FAILURE AND OF POSSIBLE SYSTEM CONTAMINATION  
• FAILURE NOT CONFIRMED.

PNEUMATIC-GSE GROUND PRESSURIZATION	AAB2-0067/PZ-402-00-104 VALVE	COUNTDOWN 7-89510-3	1040	36A	YES NO	698811
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FAILURE MODE-FAIL DURING OPERATION. VALVE 4 IN THE PCUA HEAT EXCHANGER FAILED WITH 4400 PSIG APPLIED TO THE VALVE INLET.

SYSTEM EFFECT-OPERATION TOO LOW. THE TEST WAS CONTINUED WHEN IT WAS FOUND THAT THE VALVE WOULD CONTROL PROPERLY WITH AN INLET PRESSURE OF 3600 PSIG.

VEHICLE EFFECT-NONE.

CORRECTIVE ACTION-UNKNOWN.

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## DIFFICULTIES REVIEW-PNEUMATIC SYSTEM-GSE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DEF DATA SOURCE PART NUMBER	VEHICLE DATE	SITE DIF	PRI TIME	PRIS DIF	VENDOR NAME VENDOR PART NO
PNEUMATIC-GSE GROUND PRESSURIZATION	AD62-0042/DA696/02-MO-01-13	COMPOSITE-FRD/DPL 620407	13F	6	YES	NO	689496
	FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. THE OPEN POSITION MICRO-SWITCH ON THE LN2 RAPID LOAD VALVE FAILED TO INDICATE THAT THE VALVE WAS OPEN.						
	SYSTEM EFFECT-NONE.						
	VEHICLE EFFECT-COMPOSITE DELAYED.						
	CORRECTIVE ACTION-THE SWITCH WAS MANUALLY ACTIVATED.						
PNEUMATIC-GSE GROUND PRESSURIZATION	AD62-0042/DA696/02-MO-01-13 CONTROLS BOTTLE, GSE RELIEF VALVE	COMPOSITE-FRD/DPL 620407	13F	6	NO	YES	689495
	FAILURE MODE-LEAK EXTERNAL-GSE RELIEF VALVE 12 IN THE BOTTLE PRESSURIZATION SYSTEM WAS LEAKING AND RESULTED IN LOW CONTROLS BOTTLE PRESSURE.						
	SYSTEM EFFECT-DEPLETION OF GAS SUPPLY IN SUBSTAINER CONTROL HELIUM BOTTLE.						
	VEHICLE EFFECT-NONE.						
	CORRECTIVE ACTION-UNKNOWN.						
PNEUMATIC-GSE GROUND PRESSURIZATION	FAR-AG-9B-58-240 GAS REGULATOR	FAIR 620402	12	YES	VICTOR EQUIPM NO NT LR208		689749
	FAILURE MODE-OUT OF TOLERANCE. THE REGULATOR, A COMPONENT OF THE LAUNCHER BOOSTER UNIT, FAILED WHEN IT WAS FOUND TO BE LEAKING CONTINUOUSLY FROM THE VENT PORT. FAILURE WAS CONFIRMED AND RESULTED FROM WEAR CAUSED BY IMPROPER ALIGNMENT OF PARTS WITHIN THE REGULATOR. IMPROPER ALIGNMENT DAMAGED THE CONTROL AND VENT VALVES PERMITTING CONTINUOUS VENTING AND INABILITY TO REGULATE PROPERLY.						
	CORRECTIVE ACTION-INCREASE SURVEILLANCE TO DETECT EARLY SIGNS OF FAILURE TO EFFECT RAPID REPLACEMENT AND MAINTAIN MAXIMUM OPERATING EFFICIENCY.						
PNEUMATIC-GSE GROUND PRESSURIZATION	DA67502-MO-16-03 PRESSURE CONTROL UNIT	COMPOSITE-FRD/DPL 620220	3F	6	NO	NO	
	FAILURE MODE-OUT OF SPECIFICATION. STOPPED COUNTDOWN ABORTED AND RESCHEDULED.						
	SYSTEM EFFECT-OPERATION STOPS PREMATURELY. FLIGHT PRESS IN THE LO2 TANK WAS NOT MAINTAINED, NOR WAS THE PCU ABLE TO STAY IN AUTOMATIC FOR COUNTDOWN ABORTED AND RESCHEDULED.						
	VEHICLE EFFECT-COUNTDOWN ABORTED AND RESCHEDULED.						

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## DIFFICULTIES REVIEW-PNEUMATIC SYSTEM-GSE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
PNEUMATIC-GSE GROUND PRESSURIZATION	CORRECTIVE ACTION-PS 324 SET TO 29.92 PSIG (INCU LOZ PRESS DUCT).	AG-9B-58-178F REGULATOR FILTER	FAR	020119 12	YES VICTOR NO LR20A	600407
PNEUMATIC-GSE GROUND PRESSURIZATION	FAILURE MODE-OUT OF SPECIFICATION. REGULATOR WOULD NOT MAINTAIN REQUIRED OUTLET PRESSURE. PROBLEM RESULTED FROM PRESSURE SURGE IN REGULATOR SUPPLY LINE WHEN HAND VALVE OPENED TO PRESSURIZE SYSTEM. PRESSURE SURGE CAUSED INLET FILTER TO BLOW OUT AND CONTAMINATE REGULATOR HOUSING WALLS. THE CHECK VALVE POPPET COCKED DURING VALVE OPERATION SCORING INTERNAL BODY ASSEMBLY. RECOMMENDED THAT RESTRICTOR BE PLACED IN SUPPLY LINE TO DAMPEN SURGES WHEN PRESSURIZING SYSTEM.					600736
PNEUMATIC-GSE GROUND PRESSURIZATION	FAILURE MODE-ERRATIC OPERATION. REGULATOR FAILED TO MAINTAIN FUEL STORAGE TANK PRESSURE AT A SAFE OPERATING LEVEL.	AA68-0028/P2-4BN-01-181 2.5 PSIG REGULATOR	COMPOSITE-FRD/OPL 020109	1810 12	YES NO	600608
PNEUMATIC-GSE GROUND PRESSURIZATION	SYSTEM EFFECT-ERRATIC OPERATION. FUEL STORAGE TANK PRESSURE WOULD NOT STABILIZE.					
PNEUMATIC-GSE GROUND PRESSURIZATION	VEHICLE EFFECT-NONE.					
PNEUMATIC-GSE GROUND PRESSURIZATION	CORRECTIVE ACTION-THE REGULATOR WAS REPLACED BY THE RANGE CONTRACTOR.					
PNEUMATIC-GSE GROUND PRESSURIZATION	FAILURE MODE-OUT OF TOLERANCE. REGULATOR COULD NOT BE ADJUSTED TO MAINTAIN CONSTANT OUTLET PRESSURE. PROBLEM CAUSED BY CONTAMINATION OF FILTER WHICH LED TO RUPTURE OF FILTER AND CONTAMINATION OF VALVE POPPET SEAT. THIS REGULATOR CONTROLS SUPPLY PRESSURE TO THE HASKELL LAUNCH BOOSTER UNIT.	FAR	611222 12	YES VICTOR NO LR20A		600740
PNEUMATIC-GSE GROUND PRESSURIZATION	CORRECTIVE ACTION-SITE NOTIFIED BY TXW OF FINDINGS OF ANALYSIS AND RECOMMENDATION MADE THAT SYSTEM BE CHECKED FOR CLEANLINESS AND CLEANED IF NECESSARY. FILTERS DOWNSTREAM OF FAILED REGULATOR WERE REPLACED.	AA61-011A/P6-4/HO-03-04/C2 PRESSURE CONTROL UNIT, VALVE	COMPOSITE-FRD/OPL 610010	1040 36A -16 NO		
PNEUMATIC-GSE GROUND PRESSURIZATION	FAILURE MODE-FAIL TO OPERATE AT PRECARRIED TIME. THE PNEUMATIC SYSTEM FAILED TO SWITCH FROM PHASE III PRESSURE TO PHASE I PRESSURE IN THE FUEL TANK IN THE ABORT SEQUENCE.					

REF ID: A6120003

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## DIFFICULTIES REVIEW-PNEUMATIC SYSTEM-ONE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PNL DIF OTH	VENDOR NAME VENDOR PART NO
						000449
PNEUMATIC-GSC GROUND PRESSURIZATION	9B-56-015 FILTER ELEMENT	FAR	010403	13	YES PERMANENT FILT YES ER 5389-10	000771
	FAILURE MODE-STRUCTURAL. FILTER ELEMENT Ruptured. FILTER DAMAGE WAS A SECONDARY FAILURE CAUSED BY THE ABNORMAL OPERATION OF THE SHUT OFF REGULATOR VALVE. 27-02277-1.					
	CORRECTIVE ACTION-CHANGE VALVE TO RESPONSE TIME.					
PNEUMATIC-GSC GROUND PRESSURIZATION	4A61-007/P2-401-00-90 COMPRESSOR WIRING	COUNTDOWN 7-09144-034	000	12	YES HASKELL NO	000669
			010111	-4800		
	FAILURE MODE-ELECTRICAL OPEN. DURING THE COUNTDOWN, THE HASKELL COMPRESSOR FAILED TO CYCLE IN THE REMOTE POSITION. THE TROUBLE WAS TRACED TO A BROKEN WIRE IN THE COMPRESSOR CONTROL BOX.					
	SYSTEM EFFECT-LOSS OF REDUNDANCY. AN ALTERNATE COMPRESSOR WAS USED UNTIL THE FAILED UNIT WAS REPLACED DURING A HOLD.					
	VEHICLE EFFECT-NONE. THE COMPRESSOR WAS REPLACED DURING A HOLD FOR ACC ANTENNA FAIRING PROBLEM.					
	CORRECTIVE ACTION-CONTROL BOX WIRING REPAIRED.					
PNEUMATIC-GSC GROUND PRESSURIZATION	3F-58-058 BOLENIOD VALVE	FAR	000910	13	YES AUTOMATIC NO DURGOR	000609
	FAILURE MODE-OUT OF TOLERANCE. THE VALVE FAILED TO CLOSE DURING OPERATION. THE DESIGN OF THE PISTON RING WHICH CONTROLS PILOT PRESSURE LEAKAGE IS MARGINAL, WHICH RESULTED IN RING INSERVILITY AND UNCONTROLLED PILOT PRESSURE FLOW RATE.					
	CORRECTIVE ACTION-CONVAIR HAS TAKEN ACTION TO REPLACE ALL AUTOMATIC VALVES WITH MORE OTHER VALVE WHICH WILL BE RELEASSED AFTER COMPLETION OF QUALIFICATION TESTS.					

15 JUN 1961

GENERAL DYNAMICS

DRAFTED BY: MELISSA RUEHLER - PNEUMATICAL UNIT

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DISP DATA SOURCE PART NUMBER	VEHICLE DATE DISP	SITE TIME DISP	PRI OTH	VENDOR NAME VENDOR PART NO
PNEUMATIC-GAS GROUND PRESSURIZATION	E7A-008A-14-501-C1-3E PRESSURE SWITCH	CAPT-V1-	6000203	1-4	YES	NO

FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. PSSU WHICH TERMINATES CHARGING OF THE SUSTAINER CONTROLS HELIUM BOTTLE, FAILED DURING COUNTDOWN, WATER WAS DISCOVERED IN THE PRESSURE SWITCH CONNECTOR.

SYSTEM EFFECT - HOME - BOTTLE CHARGING TERMINAL MAINTAIN.

VEHICLE SERVICES

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PNEUMATIC-GSE  
GROUND PRESSURIZATION 96-38-046 PNEUMATIC REGULATOR

**FAILURE MODE-CERATIC OPERATION.** THE REGULATOR WAS REGULATING ERRATICALLY AND THE TEFILON RACK-UP WASHER HAD COLD FLOW DISTORTION AT THE SEAL ON THE POPPET CHAMBER BACK-PLUG. THE RACK-PLUG WASHER WAS EXTRUDING BECAUSE OF EXCESSIVE DE-

PNEUMATIC-GSE  
CRICKET AND PUFFARQURIZATION 90-36-019 CIRI NAME CO-CRICKETATION SECCR YAO FAR 591000 13 YES ROBERTSHAW FUL 669763  
M. TON

FAILURE MODE-EXTERNAL LEAKAGE. REGULATOR MAINTAINED A HIGHER OUTLET PRESSURE WHILE THE INLET PRESSURE WAS DROPPING TO THE MINIMUM ALLOWABLE FOR TANK PRESSURE. THIS PREVENTED THE CONTROLLER VALVE FROM SENSING LOW TANK PRESSURE AND APPLYING EMERGENCY PRESSURIZATION TO THE MISSILE TANK. THE REGULATOR WAS FOUND TO LEAK THROUGH THE ATOSPHERE VENT ABOUE THE OUTLET PRESSURE BYPASS DIAPHRAGM. REASON FOR THE LEAKAGE WAS FOUND TO BE A POOR SEALING SURFACE ON THE SITE OF THE METAL TO VALVE.

PNEUMATIC-C&E  
PNEUMATIC EQUIPMENT COMPANY

**CORRECTIVE ACTION-COMMON IF IS REPLACING THE PRESSURE CONTROLLER VALVE WITH A CONTROLLER WHICH CAN ACCEPT THE FULL RANGE OF TANK PRESSURE.**

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CONVAIR DIVISION

DIFFICULTIES REVIEW-PNEUMATIC SYSTEM-69E

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE	SITE DIF TIME	PRI DIF OTH	VENDOR NAME VENDOR PART NO
CORRECTIVE ACTION-INSTRUCTIONS ISSUED TO BLOWDOWN THE HELIUM SYSTEM TO REMOVE DIRTY PARTICLES AND MOISTURE. INSPECT THE GROUND HELIUM FILTER FOR METAL PARTICLES AND CLEAN AS REQUIRED.						
PNEUMATIC-GSE GROUND PRESSURIZATION	98-38-123 HELIUM SHUT OFF VALVE	FAR 27-08118-9	60 591000	MTR NO	YES GS/C NO	
FAILURE MODE-CONTAMINATION, SOLENOID VALVE CONTAMINATION IN THE POPPET WITH METAL PARTICLES- KEL-F GREASE IN MANIFOLD AND MOISTURE THROUGHOUT UNIT.						
CORRECTIVE ACTION-INSTRUCTIONS ISSUED TO BLOWDOWN THE HELIUM SYS. TO REMOVE DIRT PARTICLES AND MOISTURE-INSPECT THE GROUND HELIUM FILTER FOR METAL PARTICLES AND TO CLEAN AS REQUIRED.						
PNEUMATIC-GSE GROUND PRESSURIZATION	FTA 5073/P3-401-00-14 PRESSURE CONTROL UNIT, SEAL	FRT 590724	140 -4000	13 NO		
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. LN2 LOAD COULD NOT START DUE TO A BLOWING LEAK IN THE LN2 HEAT EXC HANGER UNIT OF THE PCU. THE LEAK WAS LOCATED AT THE SEAL BETWEEN A RELIEF VALVE AND THE BULKHEAD FITTING ON THE INLET SIDE.						
SYSTEM EFFECT-OPERATION DOES NOT START. LN2 LOAD COULD NOT BEGIN.						
VEHICLE EFFECT-COUNTDOWN DELAYED. 45 MINUTE HOLD						
CORRECTIVE ACTION-THE BULKHEAD FITTING WAS REMOVED AND REPLACED WITH A COMPLETE UNIT WITH SEAL.						
PNEUMATIC-GSE GROUND PRESSURIZATION	98-08-120 DISCONNECT VALVE/POPPET	FAR 7-08224-7	8C 590700	ETR NO TON	YES ROBERTSHAW FUL NO	
FAILURE MODE-FAILED TO OPERATE AT PRESCRIBED TIME. FAILED TO VENT DISPLACED GAS AS A RESULT OF A RESTRICTION CREATE D BY POPPET MISALIGNMENT DUE TO IMPROPER HANDLING.						
CORRECTIVE ACTION-INITIATED BETTER INSPECTION PROCEDURE TO INSURE PROPER HANDLING AND INSTALLATION.						
PNEUMATIC-GSE GROUND PRESSURIZATION	FTA4894/P3-4114-00-03 CONTROL BOTTLE, 99C COMPRESSOR	COUNTDOWN	50 590805	13 -9000	YES	
FAILURE MODE-OUT OF TOLERANCE, WAS TAKEN AS A GROUND TRAILER PROBLEM. THE HASKELL COMPRESSORS APPEAR WEAK.						
SYSTEM EFFECT-OPERATION TOO LOW. DURING PRECOUNT 30 COUNTS BOTTLE WAS REPORTED NOT HOLDING PRESSURE PROPERLY. LOWEST PRESSURE NOTED IS 2100. REDLINE 3000.						
VEHICLE EFFECT-COUNTDOWN DELAYED. 20 MINUTES OF HOLD WERE REQUIRED AT T-6 TO REACH REDLINE.						

ANDREWSON

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CONVAIR DIVISION

## DIFFICULTIES REVIEW-PNEUMATIC SYSTEM-GSE

SYSTEM SUB-SYSTEM	TEST REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTII	VENUE NAME VENDOR PART NO
CORRECTIVE ACTION-UNKNOWN.					YES	699477
PNEUMATIC-GSE GROUND PRESSURIZATION	G30/A1-403-00-04 PRESSURIZATION CONTROL UNIT	FRF	4D 590602	A-1	NO	699109
SYSTEM EFFECT-OPERATION DOES NOT START.						
VEHICLE EFFECT-SEQUENCE STOPPED PRIOR TO ENGINE IGNITION. COUNTDOWN ABORTED.						
CORRECTIVE ACTION-RESET PRESSURE SWITCH.						
PNEUMATIC-GSE GROUND PRESSURIZATION	MOTS TEST REPORT 4-404-81-80 REGULATOR	CAPTIVE	590304	1-4	YES YES	699308
SYSTEM EFFECT-OUT OF TOLERANCE. THE FUEL TANK PRESSURE WAS 76 PSIG AT TEST START, DECREASING TO 0 PSIG BY 11.3 SECONDS. THE PRESSURE WAS MAINTAINED AT 36.8 PSIG DURING SUSTAINER OPERATION. THE OVERPRESSURE WAS CAUSED BY LEAKAGE IN THE GSE PRESSURE PROGRAMMER FUEL TANK PRESSURE REGULATOR.						
CORRECTIVE ACTION-UNKNOWN.						
PNEUMATIC-GSE GROUND PRESSURIZATION	MOTS TEST REPORT 4-404-81-80 REGULATOR	CAPTIVE	590302	1-4	NO YES	699801
SYSTEM EFFECT-OPERATION TOO HIGH.						
VEHICLE EFFECT-NONE.						
CORRECTIVE ACTION-UNKNOWN.						
PNEUMATIC-GSE GROUND FREQUSTRATION	FAD-BE-4-00 REGULATOR	FAC T-08331	590210 NYC	NYC	YES CROVE NO	699331
SYSTEM EFFECT-LEAK IN TANK. EXCESSIVE LEAKAGE WAS NOTED IN THE HAZARDOUS PURGE SYSTEM REGULATOR. THIS PART SUPPLIED A 500 PSI AND 2 TO THE PURGE BOX. PROBABLE CAUSE WAS A FOUL SEATING OF THE POPPET ON THE VALVE SEAT DUE TO POPPET TO SEAT ALIGNMENT.						
VEHICLE EFFECT-NONE.						
CORRECTIVE ACTION-UNKNOWN.						

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DIFFICULTIES READING-PNEUMATIC SYSTEMS-695

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DEF DATA SOURCE PART NUMBER	VEHICLE DATE DEF	SITE TIME DEF	PRI OTH	VENDOR NAME VENDOR PART NO
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CORRECTIVE ACTION-CORRECTIVE ACTION WAS NOT DEEMED NECESSARY AT THE TIME. THIS WAS THE FIRST FAILURE OF THIS COMPANY.

**PNEUMATIC-GSE**  
**GROUND PRESSURIZATION**

FTA 4410/P4-201-00-12	FRF	129	14/ETR	YES
HELIUM STORAGE BOTTLE, GSE COMPRES		501121	-2700	YES
SOR				

FAILURE MODE-OUT OF SPECIFICATION OR TOLERANCE, HELIUM BOTTLE PRESSURIZATION COULD NOT BE CONTINUED AT A NORMAL RATE DUE TO A MALFUNCTION OF THE EASY COMPRESSOR.

SYSTEM EFFECT-OPERATION TOO LOW. HELIUM BOTTLE PRESSURIZATION WAS ACCOMPLISHED SLOWLY USING THE WEST COMPRESSOR ONLY.

VEHICLE EFFECT-COUNTDOWN DELAYED. 20 MINUTE WAIT.

**CORRECTIVE ACTION-HOLD AND ACCOMPLISH PRESSURIZATION WITH WEST COMPRESSOR ONLY.**

PNEUMATIC-GSE  
CIRCUIT INFORMATION  
PTE4141/PJ-204-00-4  
COUNTDOWN  
49  
13  
YES  
NO

FAILURE MODE-FAILURE DURING OPERATION. THE FUEL TANK SECOND STAGE PRESSURIZATION REGULATOR IN THE PRESSURIZATION CIRCUIT FAILED TO RESEAT WHEN GOING TO SEQUENCE II PRESSURIZATION.

VENICE CONSCI-COMINOCHE DELAYED TO MINISTER OF TERRITORIES

CORRECTIVE ACTION-MORE LOADING PRESSURE WAS APPLIED TO THE VALVE, THE STEM WAS MANUALLY MANIPULATED, AND IT RESEATED PROPERLY.

**PNEUMATIC-GSE** FTA4088/PJ-2021-00-4  
**GROUND PREPARATION** HEAT EXCHANGER  
69048

FAILURE MODE-OUT OF TOLERANCE. HELIUM BOTTLES WERE NOT CAPABLE OF BEING PRESSURIZED TO 2000 PSI DUE TO A GROUND HEAT  
MECHANISM WHICH WAS NOT REACTIVATED.

THE JOURNAL OF CLIMATE

COOPERATIVE ACTIVITIES - LITERATURE

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## DIFFICULTIES REVIEW-PNEUMATIC SYSTEM-GSE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIS DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
PNEUMATIC-GSE GROUND PRESSURIZATION	ZB-7-079/PZ-210-B4-01 HELIUM STORAGE BOTTLE, GSE VALVE	CAPTIVE	10 980601	32 3.38	YES	680485
	FAILURE MODE-OUT OF EXPECTED TEST VALUE. A GROUND VALVE MALFUNCTION PREVENTED CHARGING OF THE AIRBORNE TANK PRESSURIZATION BOTTLES TO PROPER PRESSURE.					
	SYSTEM EFFECT-DEPLETION OF GAS SUPPLY. TANK PRESSURES DECAYED RAPIDLY FOLLOWING ENGINE START.					
	VEHICLE EFFECT-PREMATURE PROPULSION CUTOFF. OBSERVER CUTOFF WHEN LOX TANK PRESSURE DROPPED BELOW REDLINE LIMIT.					
	CORRECTIVE ACTION-UNKNOWN.					
PNEUMATIC-GSE GROUND PRESSURIZATION	EC-7-084/PZ-103-00-11 FLIGHT	11A ATT 980220	12 NO YES			680490
	FAILURE MODE-OUT OF SPECIFICATION. GROUND PRESSURIZATION TO THE MAIN TANKS WAS SLIGHTLY HIGH (FUEL TANK 61 PSIG, LO X TANK 27 PSIG). SPECIFICATION LIMITS WERE 20 TO 25 PSIG IN THE LOX TANK AND 55 TO 60 PSIG IN THE FUEL TANK.					
	SYSTEM EFFECT-NONE. WHEN TANK PRESSURIZATION REVERTED TO INTERNAL, THE TANK PRESSURES RETURN TO THEIR NORMAL OPERATING LEVELS.					
	VEHICLE EFFECT-NONE.					
	CORRECTIVE ACTION-NONE.					
PNEUMATIC-GSE GROUND PRESSURIZATION	FTA2579/PZ-101-00-11 BURG DAMPER, FACILITY HE PRESSURIZATION	FRF 980204	11A NO	12 NO	YES	680507
	FAILURE MODE-ERRATIC OPERATION. THE NO. 9200 COMPRESSOR OPERATED NORMALLY EXCEPT FOR ERRATIC OPERATION OF THE SURGE DAMPER.					
	SYSTEM EFFECT-NONE.					
	VEHICLE EFFECT-NONE.					
	CORRECTIVE ACTION-THE DAMPER WAS REPLACED.					
PNEUMATIC-GSE GROUND PRESSURIZATION	FTA2548/PZ-102-00-13		13A 980207	12 -4200	YES NO	
	FAILURE MODE-FAIL TO OPERATE AT PRECHILLED TIME. HELIUM COULD NOT BE STORED BECAUSE OF GROUND SYSTEM DIFFICULTIES. THE GROUND SYSTEM WOULD NOT GO INTO STORAGE MODE.					
	SYSTEM EFFECT-OPERATION DOES NOT START. HELIUM STORAGE PRESSURIZATION WILL NOT GO INTO STORAGE.					
	VEHICLE EFFECT-COUNTDOWN DELAYED. 45 MIN. HOLD.					

18 JUN 1966

GENERAL DYNAMICS  
CONVAIR DIVISION

## DIFFICULTIES REVIEW-PNEUMATIC SYSTEM-GSE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DEF DATA SOURCE PART NUMBER	VEHICLE DATE DEF	BITE TIME DEF	PRI OTH	VENDOR NAME VENDOR PART NO
<b>CORRECTIVE ACTION-SOLENOID RELAY CIRCUIT JUMPERED TO GROUND TO COMPLETE CIRCUIT.</b>						
PNEUMATIC-GSE GROUND PRESSURIZATION	98-58-024 RELIEF VALVE PCU	FAR	13	YES ROBERTSHAW FUL NO TON 301-70088	699803	699498
FAILURE MODE-FAILED DURING OPERATION. THE VALVE OPENED AND REMAINED OPEN WHEN IT WAS SUPPOSED TO STAY CLOSED. THE VALVE FAILED BECAUSE OF OVERPRESSURIZATION. THE METHOD OF OVERPRESSURIZATION HAS NOT BEEN DETERMINED.						
CORRECTIVE ACTION-NONE.						
PNEUMATIC-GSE MISSILE PRESSURIZATION	CT-9B-58-123 PRESSURE SWITCH	FAR	650802	368	YES MELETRON NO 920-106-416	699867
FAILURE MODE-FAIL DURING OPERATION. ATLAS PCU PRESSURE SWITCH NO 93, WHICH TRANSFERS ELECTRICAL POWER TO ACTIVATE THE LOZ BOILOFF VALVE, WAS FOUND ACTUATED WITH 0 PSIG APPLIED.						
CORRECTIVE ACTION-FUNCTIONAL TESTING COULD NOT CONFIRM FAILURE. SWITCH OPERATION WAS SATISFACTORY. RECOMMEND EXAMINATION OF PCU FOR POSSIBLE MALFUNCTION OF ANOTHER COMPONENT AND REVIEW PROCEDURE TO ASSURE NO PRESSURE IS BEING APPLIED TO THE SWITCH WHEN CHECKING CONTINUITY.						
PNEUMATIC-GSE MISSILE PRESSURIZATION	CT-9B-58-122 PRESSURE SWITCH	FAR	650719	368	YES MELETRON NO 9200-201-213	699750
FAILURE MODE-FAIL DURING OPERATION. PRESSURE SWITCH NO. 92 IN THE ATLAS PCU FAILED TO BREAK CONTACT WHEN PRESSURE WAS DECREASED ON TWO OUT OF 6 SWITCH ACTUATIONS. THIS CONDITION GIVES AN ATLAS FUEL PRESSURE TOO HIGH INDICATION, AND PLACES THE PCU IN THE EMERGENCY MODE.						
CORRECTIVE ACTION-NONE. FAILURE COULD NOT BE CONFIRMED. IT WAS CONCLUDED THAT THE ITEM WAS NOT RECEIVED IN THE FAILED CONDITION. REQUEST SITE TO INSURE FAILED ITEMS ARE NOT TAMPERED WITH BEFORE BEING SENT IN FOR FAILURE ANALYSIS.						
PNEUMATIC-GSE MISSILE PRESSURIZATION	FTAGS67/PW-WO-01-DAG STEP III PERMIT CIRCUIT	COMPOSITE-FPO/DPL	1210	360	YES NO	630713
FAILURE MODE-ELECTRICAL OPEN. UPON INITIATING SEQUENCE III PRESSURE, THE LOX TOPPING LOW PROBE WAS UNCOVERED. DUE TO A WIRING ERROR. THIS UNCOVERING OPENED THE SEQUENCE III PERMIT CIRCUIT, THUS FLIGHT PRESSURE COULD NOT BE OBTAINED.						
SYSTEM EFFECT-OPERATION STOPS PREMATURELY. FLIGHT PRESSURE COULD NOT BE OBTAINED DUE A PREMATURE DROPOUT OF THE SEQUENCE III PERMIT CIRCUIT.						

15 JUN 1966

## DIFFICULTIES REVIEW-PNEUMATIC SYSTEM-GSE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
						699827

VEHICLE EFFECT-COUNTDOWN DELAYED. THERE WERE 190 SECONDS OF RECYCLE AND 6 MINUTES OF HOLD.  
 CORRECTIVE ACTION-THE SEQUENCE III PERMIT SIGNAL WAS JUMPERED IN THE CIRCUIT. AFTER THE TEST THE CIRCUITRY WAS CORRECTED.

PNEUMATIC-GSE MISSILE PRESSURIZATION	LV-9B-40-3326-F HOSE ASSEMBLY FITTING	FAR 27-06705-23	690487	13	YES DUNBAR KAPPLE NO 216-2043	699788
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FAILURE MODE-CONTAMINATION. THE HOSE ASSEMBLY WAS REJECTED WHEN THE FITTING FLARE WAS FOUND CORRODED AND CRACKED. THE FAILURE IS ATTRIBUTED TO THE FLARE BEING IMPROPERLY HEAT TREATED. IMPROPER HEAT TREATMENT ALLOWS CHROMIUM-CARBIDE PRECIPITATION AT THE GRAIN BOUNDARIES, MAKING THE STEEL SUSCEPTIBLE TO INTERGRANULAR CORROSION.

CORRECTIVE ACTION-NONE.

PNEUMATIC-GSE MISSILE PRESSURIZATION	FA-R-CT-9B-46-029 TOGGLE SWITCH	FAR	690122	38A	YES MICROSWITCH NO 51176-7	699780
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FAILURE MODE-ELECTRICAL SHORT. THIS SWITCH IS ON THE PNEUMATIC PANEL. IT CONNECTS POWER TO THE FUEL TANK PRESSURE CIRCUITS. DURING A VALIDATION TEST THE SWITCH TOGGLE SHORTED TO ONE OF THE TERMINALS. EXAMINATION REVEALED THAT A TRAVEL LIMITING PART HAD BEEN LEFT OUT DURING ASSEMBLY OF THE SWITCH.

CORRECTIVE ACTION-IT WAS RECOMMENDED THAT A SURVEY BE CONDUCTED ON ALL SWITCHES OF THIS TYPE. THE VENDOR WAS NOTIFIED OF THE DISCREPANCY.

PNEUMATIC-GSE MISSILE PRESSURIZATION	LV-9D-40-3247-F TUBE ASSEMBLY-SLEEVE	FAR 27-01993-33	640800	13	YES ALLEN AIRCRAFT NO	699799
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FAILURE MODE-STRUCTURAL. THE PCU HOT EXCHANGER TUBE ASSEMBLY SLEEVE WAS CRACKED. THE CRACKED SLEEVE WAS CAUSED BY A COMBINATION OF (1) SENSITIZED METAL, ENDURING IT SUSCEPTIBLE TO CORROSION ATTACK. (2) SULFUR/SELENIUM INCLUSIONS CAUSING THE PART LOW TRANSVERSE STRENGTH. (3) CORROSIVE ATMOSPHERE AT ETR. (4) POSSIBLE EXPANSION AND CONTRACTION CAUSED BY MISSILE EXHAUST GAS HEAT.

CORRECTIVE ACTION-TYPE-303 STAINLESS STEEL HAS BEEN DELETED AS ACCEPTABLE MATERIAL FOR TUBE ASSEMBLY FITTINGS. STOCS WERE NOT PURGED, BUT WERE TO BE DEPLETED THROUGH NORMAL USE.

19 JUN 1966

DIFFICULTIES REVIEW-PNEUMATIC SYSTEM-GSE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
PNEUMATIC-GSE MISSILE PRESSURIZATION	LV-9B-40-3647-F TUBE ASSEMBLY-SLEEVE	FAR 27-61907-63	640800	12	YES ALLEN AIRCRAFT	698601 NO
FAILURE MODE-STRUCTURAL. THE PCU INSTALLATION TUBE ASSEMBLY SLEEVE WAS CRACKED. THE CRACKED SLEEVE WAS CAUSED BY A COMBINATION OF (1) SENSITIZED METAL RENDERING IT SUSCEPTIBLE TO CORROSION ATTACK. (2) SULFUR/SELENIUM INCLUSIONS GIVING THE PART LOW TRANSVERSE STRENGTH. (3) CORROSIVE ATMOSPHERE AT ETR. (4) POSSIBLE EXPANSION AND CONTRACTION CAUSED BY MISSILE EXHAUST GAS HEAT.						
CORRECTIVE ACTION-TYPE-303 STAINLESS STEEL HAS BEEN DELETED AS ACCEPTABLE MATERIAL FOR TUBE ASSEMBLY FITTINGS. STOCKS WERE NOT PURGED, BUT WERE TO BE DEPLETED THROUGH NORMAL USE.						
PNEUMATIC-GSE MISSILE PRESSURIZATION	FAR-LV-9B-58-4006 PRESSURE SWITCH	FAR N/A 27-08432	640716	13	YES MELETRON NO 800G079	699778
FAILURE MODE-ERRATIC OPERATION. THE PRESSURE SWITCH USED IN THE PCU WHICH SIGNALS THE LOX BOILOFF VALVE TO OPEN, PERFORMED ERRATICALLY. FAILURE WAS CAUSED BY CONTAMINATION ON THEMICROSWITCH CONTACTS.						
CORRECTIVE ACTION-FAILURE WAS CONFIRMED. VENDOR WAS ADVISED OF THE FAILURE AND REQUESTED TO IMPROVE THE EC. TO PREVENT CONTAMINATION.						
PNEUMATIC-GSE MISSILE PRESSURIZATION	CT-9B-58-093 REGULATOR	FAR 640527	1260	36A	YES APCO NO 119500	699736
FAILURE MODE-OUT OF SPECIFICATION. THIS REGULATOR WAS REJECTED DURING CHECKOUT DUE TO THE HANDWHEEL BEING HARD TO ROTATE. THIS FAILURE WAS ATTRIBUTED TO CORROSION OF THE IDLER GEAR IN THE HOUSING MECHANISM WHICH PREVENTED ROTATION OF THE SUN GEAR AND ADJUSTMENT OF THE RELIEF SPRING. ALSO, DIMENSIONAL ERRORS WERE NOTED BETWEEN THE IDLER PIN AND THE INNER DIAMETER OF THE IDLER GEAR. CORROSION PROBABLY DUE TO APPLICATION OF KEL-F LUBRICANT.						
CORRECTIVE ACTION-INITIATE REGULATOR RERWORK INCLUDING DISASSEMBLY TO CHECK FOR CORROSION AND UPDATE TO LATEST VENDOR DRAWING.						
PNEUMATIC-GSE MISSILE PRESSURIZATION	CT-9B-58-090-9 SHUTOFF VALVE	FAR 53-08181	1260	36A	YES ROBERTSHAW NO 232-20144	
FAILURE MODE-FAIL DURING OPERATION. VALVE WOULD NOT FULLY SEAT DURING THE PNEUMATIC TEST PROCEDURE. DISASSEMBLY REVEALED THE TEFLON SEAT EXHIBITED SEVERE COLD FLOW, RAGGED EDGES, AND HAD METAL PARTICLES EMBEDDED IN IT. THIS COLD FLOW OF THE TEFLON SEAT ALLOWED METAL TO METAL CONTACT AND CAUSED INTERMITTENT LEAKAGE. ALSO, THE VALVE STEM AND GUIDE WAS FOUND TO BE GALLED WHICH IS THE SOURCE OF THE METAL PARTICLES FOUND IN THE TEFLON SEAT. PROTRUSIONS NOTED IN THE CHROMIUM PLATING OF THE VALVE STEM GUIDES COULD HAVE CAUSED TILTING OF THE MATING PARTS, RESULTING IN BINDING AND MISALIGNMENT OF THE VALVE STEM.						

19 JUN 1966

## DIFFICULTIES REVIEW-PNEUMATIC SYSTEM-GSE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH VENDOR PART NO
000739					

CORRECTIVE ACTION-FAILURE ATTRIBUTED TO NORMAL WEAR. HOWEVER, ALL VALVES OF THIS TYPE ARE TO BE CHECKED FOR RECENT REWORK AND BE REPLACED IF NO RENORK RECORD EXISTS.

PNEUMATIC-GSE  
MISSILE PRESSURIZATION  
PRESSURE REGULATOR

FAILURE MODE-INTERNAL LEAK. REGULATOR WAS LEAKING INTERNALLY AND EXTERNALLY. THE REGULATOR HAD BEEN REMODELED AFTER BEING REJECTED OCTOBER 7, 1963. FAILURE WAS ATTRIBUTED TO A DAMAGED RELIEF VALVE SEAT AND MAIN SEAT. DAMAGE TO THE RELIEF VALVE SEAT RESULTED FROM THE DESIGN OF THE RELIEF VALVE AND POSSIBLY THE BRASS MATERIAL USED IN THE SENSING POSITION CONTRIBUTED SLIGHTLY.

CORRECTIVE ACTION-NONE.

PNEUMATIC-GSE  
MISSILE PRESSURIZATION  
PRESSURE SWITCH

FAILURE MODE-OUT OF TOLERANCE. THE PRESSURE SWITCH ACTUATED AT 3.5 PSIG, SETTING THE PCU INTO EMERGENCY PHASE, WHICH SHOULD HAVE ACTUATED ONLY IF LOX TANK PRESSURE FELL BELOW 3.3 PLUS MINUS 0.1 PSIG. THE SWITCH WOULD NOT MEET THE PLUS MINUS 0.1 PSI TOLERANCE.

CORRECTIVE ACTION-GD/C REQUESTED DESIGN REVIEW TO CONSIDER (A) REPLACING SWITCH (B) OPENING ACTUATION TOLERANCES (C) A NEW PCU WITH DIFFERENT SWITCHES AND SETTINGS OR (D) INCREASING REGULATOR SETTING. NO CORRECTIVE ACTION TAKEN BECAUSE (A) THIS IS THE ONLY REPORTED FAILURE IN THE PAST 6 MOS. (B) UNABLE TO OBTAIN REPLACEMENT SWITCH AND (C) SWITCH FAILURE WOULD NOT RESULT IN LOSS OF MISSILE UNLESS IT WAS SIMULTANEOUS WITH ANOTHER FAILURE.

PNEUMATIC-GSE  
MISSILE PRESSURIZATION  
RELAY

FAILURE MODE-ERRATIC OPERATION. THE PRESSURIZATION SYSTEM WOULD NOT REMAIN IN THE INTERNAL MODE. THE PROBLEM WAS CHECKED OUT AFTER THE PCU WAS ISOLATED FROM THE VEHICLE BUT IT COULD NOT BE DUPLICATED.

SYSTEM EFFECT-NONE.

VEHICLE EFFECT-NONE.

CORRECTIVE ACTION-RELAYS K106, K229, K235, AND K222 WERE REPLACED.

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DIFFICULTIES REVIEW-PNEUMATIC SYSTEMS

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SYSTEM SUB-SYSTEM		TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO	69975
PNEUMATIC-GSE		FAR-IV-9B-93-226-F	FAR	640126	12	YES	FILTERS	
MISSILE PRESSURIZATION RELAY			86-73900-032			NO	61-26010	

FAILURE MODE-ERRATIC OPERATION. THIS IS RELAY K-220 OF THE AUXILIARY PNEUMATICS PANEL. IT PROVIDES COMMANDS TO SWITC

H BETWEEN INTERNAL AND EXTERNAL HELIUM SUPPLY. FAILURE OF THE RELAY CAUSED A DROPOUT OF THE INDICATOR LIGHT. EXAMIN

ATION REVEALED A LOOSE TERMINAL AND A PAIR OF VIBRATION-SENSITIVE CONTACTS WHICH MAY HAVE BEEN CAUSED BY IMPROPER HA

MOLING.

CORRECTIVE ACTION--THE FAILURE WAS NOT CONFIRMED. ALTHOUGH THE DEFICIENCIES FOUND COULD HAVE CAUSED THE FAILURE, THE VENDOR WAS TOLD ABOUT THE FAILURE AND REPLIED THAT THE TERMINAL DESIGN, AND QUALITY CONTROL, HAD BEEN IMPROVED SINCE THE FAILED PART HAD BEEN MADE.

PNEUMATIC-GSE  
MISSILE PRESSURIZATION  
RELIEF VALVE

FAR-CT-9B-50-069	FRF	640124	36A	YES CIRCLE SEAL NO 51591-16TB-17 DOPH/612AD013	699716
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FAILURE MODE-STRUCTURAL. THE PNEUMATIC RELIEF VALVE, LEAKED AFTER RESEATING AND ALSO PRODUCED AN AUDIBLE CHATTERING SOUND. FAILURE WAS CONFIRMED. GALLING OCCURRED ON POPPET AND POPPET GUIDE BECAUSE OF BEING IN CONTACT WITH BEARING MATERIAL. CAUSE OF DISCREPANCY DUE TO BOTH BEING MADE OF THE SAME SOFT MATERIAL. THE SPRING RETAINER ALSO WAS DAMAGED FROM THE WEARING ACTION OF THE HARD SPRING ON THE SOFT RETAINER.

PNEUMATIC-GSE  
MISSILE PRESSURIZATION FAR-CT-9B-23-053P  
METER 55-D6134-1  
640123 36A YES HICKOK  
NO 48-250R  
699601

FAILURE MODE-OUT OF TOLERANCE. DURING A ROUTINE CALIBRATION, THE METER SHOWED A FOUR PERCENT ERROR OVER THE UPPER HALF OF ITS 0-TO-40 PSI RANGE. ANALYSIS CONFIRMED THE FAILURE. THE METER HAD SENSITIVITY LOSSES AND EXCESSIVE POSITION ERROR, WHICH COULD BE CAUSED BY EXPOSURE TO MAGNETIC FIELDS AND BY OVERLOADING.

PNEUMATIC-GSC  
MISSILE PRESSURIZATION  
A64-005/P2-4BN-02-193  
RELIEF VALVE, PCU FUEL TANK PRESSURE  
COMPOSITE-FRQ/DPL  
199D  
840109  
YES  
NO

FAILURE MODE-OUT OF TOLERANCE. INVESTIGATION SHOWED A LOW RELIEF SETTING ON A PCU FUEL TANK PRESSURE RELIEF VALVE. THIS CAUSED AN UNEXPECTED DROP IN THE MISSILE FUEL TANK PRESSURE AT THE START OF LOZ TANKING.

15 JUN 1966

## DIFFICULTIES REVIEW-PNEUMATIC SYSTEM-GSE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
						699946
<b>VEHICLE EFFECT-COMPOSITE DELAYED. DELAY TIME UNKNOWN.</b>						
<b>CORRECTIVE ACTION-RELIEF VALVE WAS ADJUSTED.</b>						
PNEUMATIC-GSE MISSILE PRESSURIZATION	FAR-CT-9B-38-067 VALVE	FAR	631122	36A	YES ROBERTSHAW NO 232-20144	699715
<b>FAILURE MODE-STRUCTURAL. THE SHUTOFF VALVE, WOULD NOT FULLY SEAT. FAILURE WAS THE RESULT OF COLD FLOW OF THE TEFLON SEAT MATERIAL ALLOWING THE MICROSWITCH GUIDE SPACER TO REST AGAINST THE BOTTOM OF THE SLOT IN THE ATTACHED MICROMETAL PLATE. THE VALVE STEM WAS CALLED FROM NORMAL WEAR.</b>						
<b>CORRECTIVE ACTION-NONE.</b>						
PNEUMATIC-GSE MISSILE PRESSURIZATION	FAR-SP-9B-3581 CONTROLLER	FAR	630909	12	YES MINNEAPOLIS-HO NO NEYWELL 860H013	69970
<b>FAILURE MODE-CONTAMINATION. THE PNEUMATIC PRESSURE CONTROLLER, A COMPONENT OF THE PCU, HAD AN ERRATIC CONTROLLED OUTPUT PRESSURE AND WOULD HANG UP AND NOT RESPOND TO THE INPUT (SENSING) PRESSURE. FRICTION AND SLACK IN THE LINKAGE, AND SHAVINGS AND BURRS IN THE FILTER AND RESTRICTION HOLE HELD THE FILTER PLUG OFF ITS SEAT RESULTING IN NO RESTRICTION OR FILTERING ACTION.</b>						
<b>CORRECTIVE ACTION-CONTROLLERS TO BE REPLACED PER ECP 7295.</b>						
PNEUMATIC-GSE MISSILE PRESSURIZATION	FAR-SP-9B-3590 RELIEF VALVE	FAR	630906	12	YES CIRCLE SEAL NO 812A013	69970
<b>FAILURE MODE-OUT OF TOLERANCE. THE RELIEF VALVE HAS A CRACKING PRESSURE OF 1725 PLUS OR MINUS 65 PSIG AND MINIMUM RESEAT PRESSURE OF 1550 PSIG. THE VALVE CRACKED AT 1590 PSI AND RESEATED AT 1500 PSI. EXAMINATION REVEALED SMALL BLACK RUBBER PARTICLES THROUGHOUT THE VALVE, A FINE HAIRLIKE SCRATCH ON THE SEAL AND A LARGE AMOUNT OF DIRT ON THE ThreadED PORTIONS OF THE VALVE. FAILURE WAS ATTRIBUTED TO SYSTEM CONTAMINATION.</b>						
<b>CORRECTIVE ACTION-FAILURE WAS CONFIRMED. TWO 944-045 SOO SENT TO THE FIELD REQUESTING A SYSTEM CONTAMINATION CHECK. BECAUSE OF DIFFICULTY OF MAKING A SYSTEM CHECK, NO CORRECTIVE ACTION WAS TAKEN.</b>						
PNEUMATIC-GSE MISSILE PRESSURIZATION	FAR-SP-9B-3581 CONTROLLER	FAR	630930	12	YES MINNEAPOLIS-HO NO NEYWELL 860H013	69970
<b>FAILURE MODE-ERRATIC OPERATION. THE PNEUMATIC PRESSURE CONTROLLER, A COMPONENT OF THE PCU, HAD AN ERRATIC CONTROLLED OUTPUT PRESSURE. FRICTION AND SLACK IN THE LINKAGE OVERCOMING THE AVAILABLE AIR PRESSURE CAUSED THE ERRATIC CONDITION.</b>						

15 JUN 1968

GENERAL DYNAMICS  
CONVAIR DIVISION

DIFFICULTIES REVIEW-PNEUMATIC SYSTEM-GSE

SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	QIF DATA SOURCE PART NUMBER	VEHICLE DATE	SITE DIF TIME	PRI DIF OTH	VENDOR NAME VENDOR PART NO
AUD-SYSTEM						689748

ION AT THE LOWER SENSING PRESSURE.

CORRECTIVE ACTION-CONTROLLERS TO BE REPLACED PER ECPRS.

PNEUMATIC-GSE MISSILE PRESSURIZATION	DPL-01 VALVE, SEAL	COMPOSITE-PRO/DPL 630415	F	YES NO	689748
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FAILURE MODE-OUT OF TOLERANCE. REQUIRED 19.5 SECONDS TO RAISE LOX TANK ULAGE PRESSURE FROM 10.0 TO 20.0 PSIG DUE TO A FAULTY VALVE NO. 62 IN THE PCU.

CORRECTIVE ACTION-REPLACED.

PNEUMATIC-GSE MISSILE PRESSURIZATION	FAR-CI-98-03-006 SOLENOID VALVE	FAR P-02259	SEA	YES STERER NO 10420	689748
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FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. THE 8 POSITION PNEUMATIC GNR VALVE WAS REJECTED WHEN IT REPORTEDLY FAILED TO GO TO THE ENERGIZED OR OPEN POSITION. FAILURE WAS NOT CONFIRMED. FAILURE POSSIBLY COULD HAVE BEEN CAUSED BY CONTAMINATION DISLOGED DURING SHIPMENT.

CORRECTIVE ACTION-MORE.

PNEUMATIC-GSE MISSILE PRESSURIZATION	FAR-98-56-3445 CONTROLLER	FAR F-06432	18	YES MINNEAPOLIS NO NO NEWELL Y708P1	689748
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FAILURE MODE-OUT OF TOLERANCE. THE PNEUMATIC PRESSURE CONTROLLER, A COMPONENT OF THE PCU, FAILED WHEN ITS OUTPUT PRESSURE DRIFTED OVER 1.0 PSI. THE FAILURE WAS THE RESULT OF WORN LINKAGE CONNECTIONS FROM NORMAL IN-SERVICEWEAR DURING SEVERAL YEARS.

CORRECTIVE ACTION-FAILURE WAS CONFIRMED. NO CORRECTIVE ACTION TAKEN.

PNEUMATIC-GSE MISSILE PRESSURIZATION	T-162-571-8-2399/P1-6A9-01-14 FUEL TANK PRESSURE SENSE LINE	COMPOSITE-PRO/DPL 621204	14F 210UP	11 NO	689748
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FAILURE MODE-OUT OF SPECIFICATION. DURING LOX LOADING THE FUEL PRESSURE INDICATION ON THE PNEUMATICS CONSOLE DROPPED FROM 62.9 PSIG TO 58.3 PSIG OVER A 15 MIN PERIOD. THE PROBLEM WAS ISOLATED TO AN AIRBORNE FUEL SENSING LINE WHICH WAS NOT INSTALLED TO BLUEPRINT SPECIFICATIONS.

15 JUN 1968

GENERAL DYNAMICS  
CONVAIR DIVISION

## DIFFICULTIES REVIEW-PNEUMATIC SYSTEM-GSE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	BITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
						698290
SYSTEM EFFECT-OPERATION TOO LOW. FUEL TANK PRESSURE DROPPED BELOW SPECIFICATIONS FOR PHASE 2 PRESSURE. WHEN LOX WAS DETANKEED, FUEL PRESSURE ROSE TO NORMAL LEVEL. THE PROBLEM WAS REPEATABLE WHEN LOX WAS RETANKEED. FURTHER TESTING SHOWED PCU WAS OPERATING PROPERLY. PROBLEM WAS DUE TO A FAULTY AIRDRONE SENSE LINE.						
VEHICLE EFFECT-COMPOSITE ABORTED AND RESCHEDULED SEVERAL ATTEMPTS WERE MADE TO LOAD LOX, BUT ALL WERE UNSUCCESSFUL. AND COMPOSITE WAS ABORTED DUE TO LOW PHASE 2 FUEL PRESSURES. MINIMUM ACCEPTABLE PRESSURE LEVEL IS 60.7 PSIG.						
CORRECTIVE ACTION-FUEL SENSING LINE WAS REMOVED AND REWORKED TO BLUEPRINT SPECIFICATION. SENSE LINE WAS EXTENDING TOO FAR INTO THE FUEL TANK. A REURN OF THE DPL WAS SUCCESSFUL.						
PNEUMATIC-GSE MISSILE PRESSURIZATION	AAG2-0081/P2-401-00-178 MICROSWITCH	COUNTDOWN ANSI 34-1	1790 620025	12 NO	YES NO	698046
FALLURE MODE-ELECTRICAL SHORT. WATER HAD COLLECTED IN THE MICROSWITCH HOUSING BELOW VALVE 20 AND HAD SHORDED OUT THE 26 VDC WIRE TO THE COMMON CONTACT OF THE MICROWITCH.						
SYSTEM EFFECT-OPERATION DOES NOT START. THE FAILURE OCCURRED AFTER REACHING STAGE II PRESSURE DURING FUEL TANKING ON X-1 DAY AND AS A RESULT IT WAS IMPOSSIBLE TO RESTEP TO STAGE I PRESSURE.						
VEHICLE EFFECT-NONE.						
CORRECTIVE ACTION-THE MICROWITCH AND ASSOCIATED RF FILTER WERE REPLACED WHILE THE PCU WAS IN EMERGENCY CONFIGURATION.						
PNEUMATIC-GSE MISSILE PRESSURIZATION	AAG2-0080/P2-401-04-178 R/F FILTER ON SOLENOID OPERATED VA	COMPOSITE-FRD/DPL LVE 6138001	1790 620025	12 NO	YES NO	698047
FALLURE MODE-FAIL DURING OPERATION. VALVE 2G IN THE PCU FAILED AFTER REACHING STAGE TWO PRESSURES. THE VALVE COULD NOT RESTEP TO STAGE ONE PRESSURE. THE FAILURE WAS TRACED TO WATER IN THE SWITCH HOUSING THAT SHORDED OUT 26 VDC TO THE R/F FILTER.						
SYSTEM EFFECT-OPERATION STOPS PREMATURELY. THE SYSTEM COULD NOT RESTEP TO PHASE ONE PRESSURE.						
VEHICLE EFFECT-TANKING DELAYED. TANK PRESSURES WERE MAINTAINED WITH THE PCU IN THE EMERGENCY CONFIGURATION WHILE VALVE 20 SWITCH AND FILTER WERE REPLACED.						
CORRECTIVE ACTION-MICROSWITCH AND R/F FILTER FOR PCU VALVE 20 WERE REPLACED.						
PNEUMATIC-GSE MISSILE PRESSURIZATION	AAG2-0080/D SOLENOID OPERATED VALVE	COMPOSITE-FRD/DPL LVE 7-08432	179 620010	12 NO	YES NO	698048
FALLURE MODE-FAIL DURING OPERATION. VALVE 2U IN THE PCU FAILED AFTER REACHING STAGE TWO PRESSURES. THE VALVE COULD NOT RESTEP TO STAGE ONE PRESSURE. THE FAILURE WAS TRACED TO WATER IN THE SWITCH HOUSING THAT SHORDED OUT 26 VDC TO THE R/F FILTER.						
SYSTEM EFFECT-OPERATION STOPS PREMATURELY. PHASE TWO PRESSURE COULD NOT BE ACHIEVED.						

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## DIFFICULTIES REVIEW-PNEUMATIC SYSTEM-USE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
						000000
VEHICLE EFFECT-COMPOSITE DELAYED.						
CORRECTIVE ACTION-FAULTY VALVE, 22A IN PCU, REMOVED AND REPLACED WITH NEW UNIT.						
PNEUMATIC-GSC MISSILE PRESSURIZATION	AA62-0081/A-88-58-3337 VALVE	COMPOSITE-FRD/OPL 620810 7-08438	1790 620810	12 NO	YES	000000
FAILURE MODE-FAIL DURING OPERATION. DURING PROPELLANT TANKING, VALVE 22A IN THE PCU FAILED.						
SYSTEM EFFECT-OPERATION DOES NOT START. PHASE 3 TANK PRESSURES COULD NOT BE PROPERLY MAINTAINED.						
VEHICLE EFFECT-NONE.						
CORRECTIVE ACTION-THE VALVE WAS REPLACED.						
PNEUMATIC-GSC MISSILE PRESSURIZATION	FAR-CT-98-58-034 RELIEF VALVE SEAL	FAR 020424 NO TON 301-80100-2	020424 020420	00A NO	YES	ROBERTSHAW-FUL 000000
FAILURE MODE-OUT OF SPECIFICATION. THE MOTOR ACTUATED GATE VALVE VENTS THE MISSILE FUEL TANK PRESSURE AND IS CLOSED FOR PRESSURIZATION. THE VALVE SHUTOFF FAILED TO OBTAIN A CLOSE INDICATION WHEN SIGNAL WAS SENT. FAILURE WAS CONFIRMED. THE ELECTRICAL COMPONENTS WERE BURNED OUT BECAUSE OF OVERHEATING DUE TO BINDING OF THE GATE SLIDE AND SEALS. THE BINDING WAS THE RESULT OF FIELD PERSONNEL REPLACING THE ORIGINAL O-RING WITH A SILICONE TYPE O-RING NOT COMPATIBLE TO FUEL FUELS. SEAL SWELLED FORCING THE SEALS INTO THE TRAVEL PATH OF THE SLIDE.						
CORRECTIVE ACTION-VENDOR PRINTER MODIFICATION WAS MADE CHANGING SILICONE TYPE O-RING TO VITON O-RING. SD/C CHANGED A PPLICABLE OPERATIONAL TECHNICAL ORDERS.						
PNEUMATIC-GSC MISSILE PRESSURIZATION	CAPS/HA-376/024/HO-01-133 HELIUM COMPRESSOR	COMPOSITE-FRD/OPL 07-09509-001 07-09509-001	1330 020420	12 NO	YES	000000
FAILURE MODE-ERRATIC OPERATION. MASKEL COMPRESSORS OF HELIUM PRESSURIZATION SYSTEM NOT FUNCTIONING PROPERLY. THE CAUSE OF THIS FAILURE WAS NOT KNOWN.						
SYSTEM EFFECT-OPERATION TOO LOW. PRESSURE TO A/B HELIUM BOTTLES COULD NOT BE MAINTAINED.						
VEHICLE EFFECT-NONE. FRD COUNTDOWN WAS CONTINUED USING HELIUM TRAILER PRESSURE.						
CORRECTIVE ACTION-UNKNOWN.						

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GIGABYTE MOTHERBOARD SYSTEMS

PNEUMATIC-C-656							MISSILE PRESSURIZATION		
SYSTEM SUB-SYSTEM		TEST/REPORT NUMBER FAILED COMPONENT NAME	UIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	BITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO	YES NO	
		AAS2-00384/PZ-AWQ-01-133	COMPOSITE-FR001, 1330	18					

FAILURE MODE-OUT OF EXPECTED TEST VALVE. SETTING OF PRESSURE WHICH WAS INCREASED TO APPROXIMATELY 6 PSIG. ABOVE THE NOMINAL CLOSING PRESSURE OF 4.7 PSIG.

THE SYSTEM EFFECT-OPERATION TOO HIGH. PRESSURE FROM PCU WAS TOO HIGH AND HELIUM WAS VENTED THROUGH THE SOLOFF VALVE.

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PNEUMATIC-GSE  
MISSILE PRESSURIZATION  
A-98-10-207  
RISE-OFF DISCONNECT SEAL  
FAC  
#20287 12  
YES SHAW  
NO

FAILURE MODE-EXTERNAL LEAK. THE DISCONNECT HAD A LEAK AT THE INTERFACE WITH THE LAUNCHER. THE FAILURE WAS CAUSED BY A BAD SEAL, P/N 94-16005-003, AT THE MATING JOINT BETWEEN THE GROUND HALF OF THE RISE-OFF DISCONNECT AND THE GROUND HELIUM LINE. THE SEAL WAS DIMENSIONALLY INCORRECT, HAVING A LIP OF EXCESS MATERIAL THAT HAD NOT BEEN TRIMMED OFF DURING ITS MANUFACTURE. THE EXCESSIVE MAJOR DIAMETER OF THE SEAL MADE THE SEAL TOO LARGE TO FIT INTO THE GROOVE IN THE DISCONNECT BOOT. AS A RESULT, THE UNTRIMMED LIP ON THE SEAL CAUGHT BETWEEN THE MATING PARTS PROVIDING A FLOW PATH FOR THE HELIUM TO ESCAPE.

CORRECTIVE ACTION-ALL P/N 44-1005-005 METALLIC SEALS WILL BE CHECKED BY GD/ RECEIVING INSPECTION. BEGINNING 01 JU

FAILURE MODE-OUT OF EXPECTED TEST VALUE: FUEL TANK FAILED TO PRESSURIZE TO PHASE II+ CAUSED BY FAILURE OF PCU VALVE

SYSTEM EFFECT-OPERATION DOES NOT START. PCU FAILE

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PNEUMATIC-CSE  
MISSILE PRESSURIZATION  
RELAY

FAILURE NO-GO-FAIL DURING OPERATION. FAILURE OF PCU PRIMARY SUPPLY PRESSURE DUE TO RELAY FAILURE CAUSING PCU VALVE 1 TO GO CLOSED.

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SYSTEM	TEST/REPORT NUMBER	DIF DATA SOURCE	VEHICLE	SITE	FRI	VENDOR NAME
	FAILED COMPONENT NAME	PART NUMBER	DATE DIF	TIME DIF	OTH	VENDOR PART NO
688942						
SYSTEM EFFECT-OPERATION TOO LOW. SUFFICIENT TANK PRESSURIZATION WAS NOT AVAILABLE.						
VEHICLE EFFECT-COMPOSITE ABORTED AND RE-SCHEDULED.						
CORRECTIVE ACTION-UNKNOWN.						
PNEUMATIC-GSE	FAR-F-58-086	FAR	010300	13	YES AUTOMATIC	688942
MISSILE PRESSURIZATION	SOLENOID VALVE				NO	688902
FAILURE MODE-FAIL DURING OPERATION. THIS VALVE PROVIDES 1800 PSI HELIUM PRESSURE TO THE VEHICLE LOG AND FUEL PRESSURIZATION MANIFOLDS. THE VALVE EITHER FAILED TO FULLY OPEN OR WHEN OPEN, FAILED TO FULLY CLOSE. EXAMINATION REVEALED THAT THE STAINLESS STEEL PISTON RING ON THE MAIN VALVE PISTON WAS CRITICAL IN DESIGN AND THIS CAUSED RING INSTABILITY AND UNCONTROLLED PILOT PRESSURE FLOW RATES.						
CORRECTIVE ACTION-REPLACE ALL AUTOMATIC VALVES WITH SOME OTHER VALVE TO BE SELECTED AFTER COMPLETION OF QUALIFICATION TESTS.						
PNEUMATIC-GSE	A460-0130/P2-4DN-03-53	COMPOSITE-FRD/DPL	55D	12	NO	688926
MISSILE PRESSURIZATION	PRESSURIZATION UNIT		600321		NO	
		T-08210				
FAILURE MODE-CONTAMINATION. THE GROUND AND AIRBORNE FUEL PRESSURIZATION SYSTEMS WERE BOTH CONTAMINATED WHEN AN OVERFILL CONDITION OCCURRED DURING TANKING TEST.						
SYSTEM EFFECT-CONTAMINATION.						
VEHICLE EFFECT-COMPOSITE RESCHEDULED.						
CORRECTIVE ACTION-SYSTEMS CLEANED AND PURGED.						
PNEUMATIC-GSE	9B-18-031	FAR	000200	13	YES ROBERTSHAW FUL	688906
MISSILE PRESSURIZATION	RELIEF VALVE PCU				NO TON	
					\$32-20191	
FAILURE MODE-CONTAMINATION. THE VALVE FAILED DUE TO LEAKAGE THROUGH ITS KEL-F SEAT AT 2200 PSI DURING THE HELIUM CHARGE PORTION OF THE COUNTDOWN. A PARTICLE OF HARD MATERIAL WAS LOOSED BETWEEN THE TAPERED VALVE POPPET AND THE KEL-F SEAT. THE VALVE, UPON CLOSING, CAUSED THE INITIAL DEFORMATION AND CHIPPING OF THE SEAT. THE VALVE SUBSEQUENTLY FAILED FROM LEAKAGE.						
CORRECTIVE ACTION-CONVAIR HAS INITIATED ACTION TO INCORPORATE FILTERS IN THE GSE HELIUM SYSTEM.						

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## DIFFICULTIES REVIEW-PNEUMATIC SYSTEM-GSE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE OFF TIME OFF	SITE TIME OFF	PRI OTH	VENOR NAME VENOR PART NO
PNEUMATIC-GSE MISSILE PRESSURIZATION	FTAGS31/P3-001-00-82 RELIEF VALVE	COUNTDOWN 591009	280 591009	15 -2220	YES NO	688984
 FAILURE MODE-STRUCTURAL. THE MAIN SEAT OF PCU VALVE NO. 11 RUPTURED. THIS IS THE 3000 PSIG HELIUM SYSTEM RELIEF VALVE IN THE GROUND HEAT EXCHANGER.						
SYSTEM EFFECT-DEPLETION OF GAS SUPPLY.						
VEHICLE EFFECT-COUNTDOWN DELAYED. 115 MINUTES HOLD AND 45 MINUTES RECYCLE.						
CORRECTIVE ACTION-THE VALVE WAS REPLACED.						
PNEUMATIC-GSE MISSILE PRESSURIZATION	1FTAGS31/P3-001-00-82 RELIEF VALVE	COUNTDOWN 591009	280 591009	15 -2220	YES NO	688985
 FAILURE MODE-LEAK EXTERNAL. PCU VALVE 11 (3000 PSIG HELIUM RELIEF VALVE) LEAKED DUE TO THE MAIN SEAT RUPUTURING.						
SYSTEM EFFECT-NONE.						
VEHICLE EFFECT-COUNTDOWN DELAYED TO REPLACE VALVE 11. 115 MINUTES HOLD, 45 MINUTES RECYCLE.						
CORRECTIVE ACTION-VALVE 11 REPLACED.						
PNEUMATIC-GSE MISSILE PRESSURIZATION	FAR9B-50-019 REGULATOR	FAR 591007	280 591007	15 -2220	YES ROBERTSHAW FUL NO TON 232-20742-4	688986
 FAILURE MODE-ERRATIC OPERATION. REGULATOR IN THE PCU WHICH PREVENTS APPLICATION OF PRESSURE ABOVE 9 PSI TO BOURDON TUBE IN EMERGENCY PRESSURE CONTROLLER VALVE HAD A HIGH OUTLET PRESSURE WHILE INLET PRESSURE DROPPED TO MINIMUM ALLOWABLE FUEL TANK PRESSURE. THIS PREVENTED CONTROLLER VALVE FROM SENSING LOW TANK PRESSURE AND APPLYING EMERGENCY PRESSURIZATION. BENCH TESTING INDICATED REGULATOR HAD SLOW RESPONSE TO DECREASING INLET PRESSURE AND THE UNIT LEAKED THROUGH THE ATMOSPHERE VENT ABOVE THE OUTLET PRESSURE SENSING DIAPHRAGM. CONCLUDED THAT REGULATOR RESPONSE TO DECREASING INLET PRESSURE WAS DIRECTLY PROPORTIONAL TO THE EXTERNAL LEAKAGE PAST THE OUTLET PRESSURE/ATMOSPHERE DIAPHRAGM, MAKING OPERATION INHERENTLY ERRATIC.						
 CORRECTIVE ACTION-REPLACE PRESSURE CONTROLLER VALVE USED WITH A CONTROLLER WHICH CAN ACCEPT THE FULL RANGE OF TANK PRESSURES, WHICH WOULD ELIMINATE THE NEED FOR THE SUBJECT REGULATOR IN THE PCU.						
PNEUMATIC-GSE MISSILE PRESSURIZATION	9A-08-114 DISCONNECT-RIBSOFF ASSY., HELIUM	FAR 591000	280 7-06224-803	15 NO	YES ROBERTSHAW FUL NO TON	
 FAILURE MODE-LEAKAGE AT A RATE OF 600 CC/MIN. AT 60 PSIG (ALLOWABLE 400 CC/MIN. AT 60 PSIG). THIS LEAKAGE WAS CAUSED BY THE OXYLURE DRYING, RESULTING IN IMPROPER SEAL.						

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SYSTEM SUB-SYSTEM	TEST REPORT NUMBER FAILED COMPONENT NAME	DIY DATA SOURCE PART NUMBER	VEHICLE DATE DIFF	SITE TIME DIFF	PRI OTH	VENDOR NAME VENDOR PART NO
PNEUMATIC-GSE MISSILE PRESSURIZATION	FTAGS142/PB-404-00-17 PCU VALVE NO. 11 CONTROLLER	COUNTDOWN 965610	11D 965610	13 -2100	YES NO	600483 600600
FAILURE MODE-DRIFT. THE PCU VALVE 11 CONTROLLER SETTING DRIFTED, CAUSING BELOW REDLINE AIRBORNE BOTTLE SUPPLY PRESSURE. USE ON BLAEOF DISCONNECTS.						
PNEUMATIC-GSE MISSILE PRESSURIZATION	9B-06-121 VALVE-MANUAL SHUT-OFF HELIUM/O-RIN 7-062533-11	FAR G	690900 590000	MS18 NO TON	YES ROBERTSHAW FUL NO TON	600436
CORRECTIVE ACTION-THE PCU VALVE NO. 11 CONTROLLER WAS RESET TO GIVE SATISFACTORY PRESSURES.						
PNEUMATIC-GSE MISSILE PRESSURIZATION	9B-06-121 MANUAL SHUTOFF HELIUM VALVE/O RING 2T-06100-3	FAR G	2D 590000	SYCAMORE YES ROBERTSHAW FUL NO TON		
FAILURE MODE-LEAKED INTERNALLY ALONG BUTTERFLY SHAFT DUE TO DAMAGED O-RINGS.						
PNEUMATIC-GSE MISSILE PRESSURIZATION	9B-06-121 MANUAL SHUTOFF HELIUM VALVE/O RING 2T-06100-3	FAR G	2D 590000	SYCAMORE YES ROBERTSHAW FUL NO TON		
CORRECTIVE ACTION-A CHAMFER ON VALVE BODY AND BUTTERFLY WILL BE INCORPORATED TO ALLOW INSTALLATION OF SHAFT O-RING WITHOUT DAMAGE.						
PNEUMATIC-GSE MISSILE PRESSURIZATION	9B-06-121 MANUAL SHUTOFF HELIUM VALVE/O-RIN 87-06100-3	FAR G	2D 590000	SYCAMORE YES ROBERTSHAW FUL NO TON		
FAILURE MODE-LEAKED INTERNALLY WHEN CLOSED AND IN LOCKED POSITION DUE TO 1/4 INCH O-RING DAMAGE WHICH RESULTED FROM ASSEMBLY.						
PNEUMATIC-GSE MISSILE PRESSURIZATION	9B-06-121 MANUAL SHUT-OFF HELIUM VALVE/O-RIN 87-06100-3	FAR G	590000 590000	YES ROBERTSHAW FUL NO TON		
CORRECTIVE ACTION-A CHAMFER ON VALVE BODY AND BUTTERFLY TO BE INCORPORATED TO ALLOW INSTALLATION OF SHAFT O-RING WITHOUT DAMAGE.						
PNEUMATIC-GSE MISSILE PRESSURIZATION	9B-06-121 MANUAL SHUT-OFF HELIUM VALVE/O-RIN 87-06100-3	FAR G	590000 590000	YES ROBERTSHAW FUL NO TON		
FAILURE MODE-LEAKED INTERNALLY WHEN CLOSED AND IN LOCKED POSITION DUE TO 1/4 INCH O-RING DAMAGE WHICH RESULTED FROM ASSEMBLY.						
CORRECTIVE ACTION-A CHAMFER ON VALVE BODY AND BUTTERFLY TO BE INCORPORATED TO ALLOW INSTALLATION OF SHAFT O-RING WITHOUT DAMAGE.						

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SÜDDEUTSCHE PREDIGEN 1611-1612

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIV DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
	THROTTLE DAMAGE.					

THOUGHT DAMAGE.

PNEUMATIC-68E FAR8-38-004 FAR 30 15 YES ROBERTSHAW-FUL  
MISSILE PRESSURIZATION DISCONNECT COUPLING VALVE BY-0000000-2 BADAW NO TON 688687

FAILURE MODE-EXTERNAL LEAK. THE GROUND PORTION OF DISCONNECT COUPLING VALVE WAS LEAKING AT THE SEAL DUE TO SHRINKAGE OF THE TEFLON LIP SEAL.

**CORRECTIVE ACTION-VENDOR REQUESTED TO RETROFIT ALL UNITS WITH SEALED GROUTED QUANTITY MATERIAL**

PNEUMATIC-6SE  
MISSILE PRESSURIZATION  
FAR-98-58-002  
RELIEF VALVE  
232-20151  
590402  
YES AMININ  
NO  
699566

FAILURE MODE-EXTERNAL LEAK. VALVE WAS LEAKING THROUGH THE SEAT DURING ANR TEST. FAILURE DUE TO AN EXCESSIVE APPLICA-

CARBON TAXES AND THE ENVIRONMENT

PNEUMATIC-GSE  
MISSILE PRESSURIZATION  
RELIEF VALVE  
COUNTDOWN  
110 sec/0.1  
11 sec/0.1  
YES  
NO  
698344

FAILURE MODE-FAIL DURING OPERATION. RELIEF VALVE IS IN THE HELIUM 3000 PSI SYSTEM WAS VENTING; THUS PREVENTING CONGESTION AT HELIUM 3000 PSI.

SYSTEM EFFECT-OPERATION TOO LOW. HELIUM STORAGE COULD NOT BE COMPLETED DUE TO VENTING OF 3000 PSI SYSTEM RELIEF VAL.

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PNEUMATIC-GAE  
MISSILE PRESSURIZATION

CONNECTIVE AUTOMATIC CUFF LINES TO REGULAT VALVES.

FT44141/P3-204-00-4

PCU FUEL TANK REGULATOR

COUNTDOWN

48 sec

13 sec

YE4

NO

999905

**FAILURE MODE-INTERNAL LEAK.** THE PCU FUEL TANK REGULATOR WOULD NOT SEAT CAUSING DIFFICULTY IN MAINTAINING PROPER TAN GROSSARIZATION

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SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE	SITE DIF TIME	PRI OTH	VENDOR NAME VENDOR PART NO
PNEUMATIC-GSE MISSILE PRESSURIZATION	FTA4088/P3-201-00-4 VENT VALVE	FAR 380716	46	13	YES	699905
FAILURE MODE-OUT OF TOLERANCE. THE GROUND HEAT EXCHANGER VENT VALVE RELIEVED BELOW 2000 PSI WHICH PREVENTED FULL PRESSURIZATION OF HELIUM BOTTLES.						
SYSTEM EFFECT-OPERATION TOO LOW.						
VEHICLE EFFECT-COUNTDOWN DELAYED. HOLD TIME WAS 27 MINUTES.						
CORRECTIVE ACTION-NOT DOCUMENTED. THE TEST WAS CONTINUED WITH OUT OF TOLERANCE VALVE.						
PNEUMATIC-GSE MISSILE PRESSURIZATION	FAR-SP-9B-58-3444 CONTROLLER	FAR T-08432-001	62124	12	YES	MINNEAPOLIS HO 699763
FAILURE MODE-OUT OF TOLERANCE. THE PNEUMATIC PRESSURE CONTROLLER, A COMPONENT OF THE PCU, FAILED WHEN IT WOULD NOT REPEAT WITHIN LIMITS. IMPROPER POSITIONING OF THE MANUAL RESET ADJUSTMENT AND A LOOSE FEEDBACK BELLOWS CANISTER WERE THE CAUSES OF FAILURE.						
CORRECTIVE ACTION-FAILURE WAS CONFIRMED. RELIABILITY FAILURE ANALYSIS GROUP INFORMED PNEUMATICA DESIGN OF FINDINGS AND RECOMMENDED THE POSSIBILITY OF LOCKWIRING THE MANUAL RESET ADJUSTMENT BETWEEN AND THE FEEDBACK BELLOWS CANISTER ATTACHING SCREWS. ED/C CONSIDERED THE FAILURE RATE INSUFFICIENT TO WARRANT DESIGN ACTION.						
PNEUMATIC-GSE LN2 SUPPLY	SP-9B-58-3947 PRESSURE CONTROLLER	FAR N/A 7-08432-001	630320	13	YES	MINNEAPOLIS HO 699700
FAILURE MODE-OUT OF SPECIFICATION. THE THIRD OUTPUT PRESSURE CALIBRATION POINT WAS BETWEEN 10 AND 15 PSI HIGH AT ITS DESIGNATED SENSING PRESSURE. FAILURE WAS DUE TO THE CONTROLLER BEING OUT OF ADJUSTMENT. THIS WAS CAUSED BY ETR PERSONNEL NOT ISOLATING THE CONTROLLER WHILE CHECKING RELIEF VALVES. THIS RESULTED IN OVER PRESSURIZATION OF THE BOARDO LN TUBE WITHIN THE CONTROLLER AND CHANGED THE OPERATING RANGE OF THE UNIT AS ADJUSTED.						
CORRECTIVE ACTION-NONE. ETR PERSONNEL ARE AWARE OF THE PROBLEM.						
PNEUMATIC-GSE LN2 SUPPLY	SP-9B-58-3446 PRESSURE CONTROLLER	FAR	630321	13	YES	MINNEAPOLIS HO NO NEYVELL 380813
FAILURE MODE-OUT OF SPECIFICATION. CONTROLLED AIR PRESSURE WAS NOT WITHIN SPECIFICATION LIMITS. FAILURE WAS DUE TO THE CONTROLLER BEING OUT OF ADJUSTMENT. THIS WAS CAUSED BY ETR PERSONNEL NOT ISOLATING THE CONTROLLER WHILE CHECKING RELIEF VALVES. THIS RESULTED IN OVERPRESSURIZATION OF THE BOARDO TUBE WITHIN THE CONTROLLER AND CHANGED THE OPERATING RANGE OF THE UNIT AS ADJUSTED.						

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DIFFICULTIES REVIEW-PNEUMATIC SYSTEM-GSE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	OIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
						699699
CORRECTIVE ACTION-NONE.	ETR PERSONNEL ARE AWARE OF THE PROBLEM.					
PNEUMATIC-GSE LNG SUPPLY	SP-9B-18-355C PRESSURE SWITCH	FAR	630523	13	YES	MELETRON NO 9200-20168-168
	FAILURE MODE-OUT OF SPECIFICATION. SWITCH DRIFTED OUT OF CALIBRATION. FAILURE ANALYSIS WAS CANCELLED.					
CORRECTIVE ACTION-NONE.						
PNEUMATIC-GSE LN2 SUPPLY	SP-9B-18-355C PRESSURE SWITCH	FAR	630523	13	YES	MELETRON NO 9200-201-161
	FAILURE MODE-OUT OF SPECIFICATION. SWITCH DRIFTED OUT OF CALIBRATION. FAILURE ANALYSIS WAS CANCELLED.					
CORRECTIVE ACTION-NONE.						
PNEUMATIC-GSE LN2 SUPPLY	AD61-0349-0A630/LN2-4MD-01-114	COMPOSITE-FRD/DPL	114-D 611216	1-2	NO	699493
	FAILURE MODE-OUT OF EXPECTED TEST VALUE. LOX TANK PRESSURE DROPPED TO 4.0 PSIG AT TERMINATION OF LOX RAPID LOAD. FAILURE CAUSED BY DEPLETION OF GROUND LOX SUPPLY ALLOWING TRANSFER NITROGEN TO ENTER LOX DUCTING AND LOX TANK. MINIMUM AMOUNT OF LOX INTENTIONALLY USED FOR THIS TEST TO CHECK EFFECT OF LOX CONTAMINATION BY NITROGEN.					
SYSTEM EFFECT-OPERATION TOO LOW. LOW LOX TANK PRESSURE CAUSED PCU 10 TO GO TO EMERGENCY.						
VEHICLE EFFECT-COMPOSITE DELAYED.						
CORRECTIVE ACTION-NONE.						
PNEUMATIC-GSE LN2 SUPPLY	AAG1-0152/F2-404-00-117 PCU VALVE NO. 7	COUNTDOWN	1170 011114	1%	YES -1660	699894
	FAILURE MODE-CONTAMINATION. LN2 STORAGE VALVE NO. 7 FROZE DURING LN2 STORAGE. THE VALVE WAS FREED UPON CYCLING.					
SYSTEM EFFECT-OPERATION STOPS PREMATURELY. LN2 STORAGE WAS TEMPORARILY DISCONTINUED.						
VEHICLE EFFECT-COUNTDOWN DELAYED. HOLD TIME WAS 4 MINUTES.						
CORRECTIVE ACTION-VALVE NO. 7 WAS CYCLED UNTIL IT OPERATED FREELY.						

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## DIFFICULTIES REVIEW-PNEUMATIC SYSTEM-GSE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
PNEUMATIC-GSE LN2 SUPPLY	FTAGS4R/P3-402-00-44 HEAT EXCHANGER	COUNTDOWN	440 600126	13 -3540	YES NO	699509
FAILURE MODE-EXTERNAL LEAK. AN LN2 LEAK AT THE HEAT EXCHANGER WAS REPORTED. INVESTIGATION REVEALED THAT IT WAS NOT SERIOUS.						
SYSTEM EFFECT-NONE. VEHICLE EFFECT-NONE.						
CORRECTIVE ACTION-NONE. A DECISION WAS MADE TO GO AS IS.						
PNEUMATIC-GSE LN2 SUPPLY	FTA 808A/P2-302-00-11 REGULATOR	COUNTDOWN	11C 390021	12 -1920	YES NO	699503
FAILURE MODE-FAIL DURING OPERATION. LN2 COULD NOT BE LOADED DUE TO A FAULTY REGULATOR ON THE LN2 TRAILER. SYSTEM EFFECT-OPERATION DOES NOT START.						
VEHICLE EFFECT-COUNTDOWN DELAYED. 32 MINUTE HOLD AND COUNTDOWN RECYCLE OF 3 MINUTES.						
CORRECTIVE ACTION-ATTEMPTS WERE MADE TO ATTAIN PROPER REGULATOR OPERATION. THESE WERE UNSUCCESSFUL. THE LN2 TRAILER WAS THEN REPLACED.						
PNEUMATIC-GSE LN2 SUPPLY	FTA4579/P1-202-00-11 LN2 STORAGE TRAILER REGULATOR	COUNTDOWN	11B 390004	11 -8700	YES NO	699146
FAILURE MODE-FAIL DURING OPERATION. LN2 LOADING COULD NOT BE CONTINUED DUE TO FAILURE OF THE LN2 TRAILER REGULATOR WHICH OVER PRESSURIZED THE TRAILER CAUSING RELIEF VALVE ACTUATION.						
SYSTEM EFFECT-OPERATION STOPS PREMATURELY. LN2 STORAGE COULD NOT BE CONTINUED DUE TO FAILURE OF THE LN2 TRAILER REGULATOR.						
VEHICLE EFFECT-COUNTDOWN DELAYED. 5 MINUTES HOLD.						
CORRECTIVE ACTION-CHANGED LN2 TRAILERS.						
PNEUMATIC-GSE LN2 SUPPLY	FTA4008/P3-201-00-4 VALVE-LN2 HEAT EXCHANGER	FAF	4B 390016	13 -4200	YES NO	
FAILURE MODE-CONTAMINATION. LN2 HEAT EXCHANGER VALVE WAS FROZEN.						
SYSTEM EFFECT-OPERATION DOES NOT START.						
VEHICLE EFFECT-COUNTDOWN DELAYED. HOLD TIME 30 MINUTES.						

19 JUN 1986

GENERAL DYNAMICS  
CONVAIR DIVISION

DIFFICULTIES REPORT-PNEUMATIC SYSTEM-68E

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
CORRECTIVE ACTION-THE VALVE WAS THAWED.						
PNEUMATIC-68E LNG SUPPLY	FT1A086/P3-201-00-4 VALVE-LNG SYSTEM	FPP	48 160716	12 -4200	YES NO	680846

FAILURE MODE-OUT OF TOLERANCE. LNG COULD NOT BE LOADED DUE TO A FROZEN GROUND HEAT EXCHANGER LNG VALVE.

SYSTEM EFFECT-OPERATION DOES NOT START. THE VEHICLE EFFECT-COUNTDOWN DELAYED. 30 MINUTE HOLD.

VEHICLE EFFECT-COUNTDOWN DELAYED. 30 MINUTE HOLD.

CORRECTIVE ACTION-THAWED VALVE OUT SO IT WAS OPERATIVE.

**PROPULSION INTERFACE  
GSE  
DIFFICULTIES REVIEW**

DIFFICULTIES REVIEW - GSE

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15 JUN 1966

GENERAL MANAGERS  
CONVAIR DIVISION

## DIFFICULTIES REVIEW-PROPULSION SYSTEM-GSE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI	VENDOR NAME	VENDOR PART NO
PROPELLION-HAZ-GSE	AEGU-0338/P1-402-00-00 AMPLIFIER	COUNTDOWN 0000708	000	16/ETR	YES	696480	
	FAILURE MODE-OUT OF SPECIFICATION. B2 RCC ACCELEROMETER AMPLIFIER WAS NOISY.			-4800	NO		
	SYSTEM EFFECT-ERRATIC OPERATION. LOSS OF CAPABILITY TO MEASURE B2 ROUGH COMBUSTION.						
	VEHICLE EFFECT-NONE.						
	CORRECTIVE ACTION-AMPLIFIER WAS REPLACED.						
PROPELLION-HAZ-GSE GENERAL	FT44757/P3-402-00-03 LITHIUM CHLORIDE UNIT FILTER	COUNTDOWN 000414	3D	13	YES	696480	
	FAILURE MODE-FAIL DURING OPERATION. LITHIUM CHLORIDE FILTER WAS PLUGGED.						
	SYSTEM EFFECT-OPERATION TOO LOW.						
	VEHICLE EFFECT-COUNTDOWN DELAYED. START OF COUNTDOWN DELAYED ONE HOUR.						
	CORRECTIVE ACTION-LITHIUM CHLORIDE UNIT FILTER WAS REPLACED.						
PROPELLION-HAZ-GSE	DA339/P1-3M0-16-24 CIRCUIT FOR SPGG INITIATOR SIMULAT	COMPOSITE-FAD/DPI. 011201	84E	F	YES	696484	
	OR, FAILURE MODE-OUT OF TOLERANCE. GAS GENERATOR INITIATOR SIMULATOR DID NOT ALLOW FIRING OF INITIATORS AS THE SIMULATOR WAS NOT COMPATIBLE WITH LAUNCH CONTROL SYSTEM.						
	SYSTEM EFFECT-OPERATION DOES NOT START. SPGG INITIATORS DID NOT FIRE.						
	VEHICLE EFFECT-COMPOSITE DELAYED.						
	CORRECTIVE ACTION-UNKNOWN.						
PROPELLION-HAZ-GSE	AD11-0292D4893/P1-5M0-33-24 CIRCUIT FOR SPGG INITIATOR SIMULAT	COMPOSITE-FAD/DPI 010981	84E	F	YES	696482	
	OR, FAILURE MODE-OUT OF TOLERANCE. GAS GENERATOR INITIATOR SIMULATOR DID NOT ALLOW FIRING OF INITIATORS AS SIMULATOR WAS NOT COMPATIBLE WITH LAUNCH CONTROL SYSTEM.						
	SYSTEM EFFECT-OPERATION DOES NOT START. SPGG INITIATORS DID NOT FIRE.						
	VEHICLE EFFECT-COMPOSITE DELAYED.						
	CORRECTIVE ACTION-UNKNOWN.						

18 JUN 1986

GENERAL DYNAMICS  
CONTRACT DIVISION

## DIFFICULTIES REVIEW-PROPELLION SYSTEM-GSE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE	SITE	PRI TIME DIF	CITY	VENDOR NAME PART NO
PROPELLION-MAS-GSE	SLV-9D-40-3337 LIQUID OXYGEN FILL AND DRAIN VALVE 27-02102-31	FAR 27-02102-31	680115		YES ATRATOS NO		680531
	FAILURE MODE-FAILED TO OPERATE AT PRESCRIBED TIME. DURING DPL PROCEDURE 27-94445-3, THE VALVE FAILED TO OPEN AND CLOSE IN THE CORRECT SEQUENCE.						
	CORRECTIVE ACTION-CONFIRMED FAILURE. WATER HAD ENTERED VALVE, FROZE AND PREVENTED OPERATION. NO MEANINGFUL ACTION CAN BE TAKEN OTHER THAN INFORMING SITE PERSONNEL OF DETAILS OF THIS ANALYSIS. THIS WAS DONE 3 MARCH 1986.						
PROPELLION-MAS-GSE	SLV-9D-40-3329 FUEL FILL AND DRAIN VALVE	FAR 27-02101-23	681006	2-4	YES AIRESEARCH NO	121054	680536
	FAILURE MODE-ERRATIC OPERATION. VALVE SERIAL NUMBER 403-1470 WAS FOUND TO OPERATE IN REVERSE DIRECTION DUE TO IMPROPER INSTALLATION OF THE LINKAGE.						
	CORRECTIVE ACTION-NEW EOP 313-26 WAS RELEASED 15 FEBRUARY 1986 TO PROVIDE REQUIREMENTS FOR TESTING AND ADJUSTMENT OF THE FILL AND DRAIN VALVE. NO FURTHER ACTION TAKEN.						
PROPELLION-MAS-GSE	SLV-9D-40-3329 FUEL FILL AND DRAIN VALVE	FAR 27-02101-23	681006	2-4	YES AIRESEARCH NO	121054	680536
	FAILURE MODE-OUT OF TOLERANCE. VALVE SERIAL NUMBER 208-1860 OPERATED TOO RAPIDLY AND THE OPEN MICRO SWITCH FAILED TO FUNCTION. THE SCREW SECURING THE LEVER ARM WAS FOUND LOOSE. NO SHIMS WERE FOUND.						
	CORRECTIVE ACTION-NEW EOP 313-26 WAS RELEASED 15 FEBRUARY 1986 TO PROVIDE REQUIREMENTS FOR TESTING AND ADJUSTMENT OF THE FILL AND DRAIN VALVE. NO FURTHER ACTION TAKEN.						
PROPELLION-MAS-GSE	SLV-9C-40-3329 FUEL FILL AND DRAIN VALVE, SCREW	FAR 27-02101-23	681006	2-4	YES AIRESEARCH NO	121054	680537
	FAILURE MODE-OUT OF TOLERANCE. VALVE SERIAL NUMBER 410-3850, OPERATED IN REVERSE AND THE OPEN MICROSWITCH WAS HALF UNFUNCTIONING. THE SECURING SCREW WAS FOUND LOOSELY TORQUED. NO SHIMS WERE FOUND BETWEEN THE SUPPORTING SHAFT AND SPLINED BUTTERFLY SHAFT. BINDING BETWEEN LINKAGE AND ITS HOUSING WAS FOUND.						
	CORRECTIVE ACTION-NEW EOP 313-26 WAS RELEASED 15 FEBRUARY 1986 TO PROVIDE REQUIREMENTS FOR TESTING AND ADJUSTMENT OF THE FILL AND DRAIN VALVE. NO FURTHER ACTION TAKEN.						

**PROPULSION INTERFACE  
GSE  
DIFFICULTIES REVIEW**

DIFFICULTIES REVIEW PROPULSION INTERFACE GSE  
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18 JUN 1966

## DIFFICULTIES REVIEW-PROPELLION INTERFACE SYSTEM-63E

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	OIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME NO. VENDOR PART NO
PROPL INTERFACE-63E ENGINE PURGE	FAR-CT-9B-40-059 SOLENOID VALVE	FAR 27-08108-1	650284	38A/ETR	YES HAROTTA NO. 803394	699854
FAILURE MODE-LEAK-EXTERNAL. THE 2 POSITION PNEUMATIC PURGEVALVE USED TO PURGE THE LOX DOME OF THE BOOSTER AND SUSTAINING ENGINES LEAKED OUT THE VENT PORT IN THE NORMALLY CLOSED POSITION. LEAK WAS CAUSED BY CONTAMINATION AT THE POPPET SEATING PREVENTING PROPER SEATING OF THE VALVE. SOURCE OF THE CONTAMINATION IS UNKNOWN.						
CORRECTIVE ACTION-SITE PERSONNEL INFORMED TO CLEAN THE SYSTEM. RECOMMENDED, REPLACE AND REWORK ALL SOLENOID VALVES HAVING RUBBER CURE AND ASSEMBLY DATES EXCEEDING 1 YEAR. PROVIDE ASSURANCE ALL VALVES CLEANED PER CORRECT CONVAIR SPECIFICATION. VALVES TO BE REMOKED BY VENDOR UNTIL CONVAIR HAS NECESSARY KNOWLEDGE AND TECHNIQUE TO CORRECTLY REWORK VALVES. UP TO DATE REWORK RECORDS WILL BE MAINTAINED.						
PROPL INTERFACE-63E ENGINE PURGE	LV-9B-40-3259-F SOLENOID VALVE	FAR 27-08108-1	640005	11/ETR	YES HAROTTA NO. 803394	699809
FAILURE MODE-LEAK. CONTAMINATION ENTERED THE VALVE THROUGH THE BODY PISTON VENT HOLES AND THE CYLINDER VENT PORT. THIS CONDITION ALLOWED LEAKAGE PAST THE POPPET SEAT.						
CORRECTIVE ACTION-ECP 3472, APPROVED BY THE CUSTOMER, 3 SEPTEMBER 1965, REMOVES AND REPLACES TWO PURGE CONTROL BOX HALF-COVER ASSEMBLIES AND GASKETS WITH NEW ONES, AND ADDS A PROTECTIVE HEAT RESISTANT COATING, COMPLYING WITH GDC SPECIFICATION D-00012, TO THE CONTROL BOX TO ELIMINATE PAINT BLISTERING AND PEELING INSIDE THE BOX.						
PROPL INTERFACE-63E ENGINE PURGE	LV-9B-40-3259-F SOLENOID VALVE	FAR 27-08108-1	640619	12/ETR	YES SOUTHWESTERN NO. 803394	699808
FAILURE MODE-CONTAMINATION. THE VALVE WOULD NOT ACTUATE COMPLETELY OR SEAT PROPERLY DURING A SYSTEM LEAK CHECK. THE FAILURE IS ATTRIBUTED TO INTERNAL CONTAMINATION PREVENTING FULL POPPET TRAVEL.						
CORRECTIVE ACTION-ECP 3472, APPROVED BY THE CUSTOMER, REMOVES AND REPLACES TWO PURGE CONTROL BOX HALF-COVER ASSEMBLIES AND GASKETS, AND ADDS A PROTECTIVE HEAT RESISTANT COATING, COMPLYING WITH GDC SPECIFICATION D-00012.						
PROPL INTERFACE-63E ENGINE PURGE	A-9B-40-3032-F SOLENOID VALVE	FAR 27-08108-1	620905	12/ETR	YES HAROTTA NO. 803394	
FAILURE MODE-LEAK-EXTERNAL. THE SOLENOID VALVE VENTED CONTINUOUSLY FROM THE EXHAUST PORT. INTERNAL LEAKAGE WAS THE RESULT OF CONTAMINATION INTERFERENCE WITH POPPET SEATING.						
CORRECTIVE ACTION-CIC 0700, EFFECTIVE 6 NOVEMBER 1962, PROVIDED INSTALLATION OF CHECK VALVES IN THE PURGE BOX HANL						

19 JUN 1966

## DIFFICULTIES REVIEW-PROPELLION INTERFACE SYSTEM-GSE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
F040.						699719

PROPL INTERFACE-GSE 98-40-017 PAN 590600 122E/TR YES SOUTHWESTERN V 699709  
ENGINE PURGE SOLENOID OPERATED PURGE VALVE/O-RI 7-02300-1 NO ALVE CORP.  
NG

FAILURE MODE-INTERNAL LEAK. THE VALVE LEAKED THROUGH THE VENT PORT. LEAKAGE OCCURRED PAST A SLIGHTLY WICKED APPARENTLY UNDERIALIZED O-RINGS.

CORRECTIVE ACTION-NONE. C SERIES WILL BE REPLACED BY D SERIES TYPE VALVE.

PROPL INTERFACE-GSE FTAG572/P6B-CO-03-QACS COMPOSITE-J FACT 151D 36A/E/TR YES  
ELECTRICAL CONTROL BSC IGNITER 1 AND 2 CONNECTORS 650803 0 NO  
699724

FAILURE MODE-OUT OF TOLERANCE. PLUGS P203 AND P204 (BSC IGNITER NO. 1 AND NO. 2) IN THE GTR WERE REVERSED WHICH PREVENTED COMPLETION OF THE ENGINE START SEQUENCE.

SYSTEM EFFECT-IMPROPER DISCRETE SIGNALS. REVERSING OF GTR PLUG P203 AND P204 CAUSED AN IGNITION STAGE LIMITER CUTOFF.

VEHICLE EFFECT-COMPOSITE DELAYED. RECYCLE TIME WAS 5 MINUTES. HOLD TIME IS NOT AVAILABLE.

CORRECTIVE ACTION-INSTALLED PLUGS P203 AND P204 IN THE PROPER RECEPACES.

PROPL INTERFACE-GSE AA62-0048/P5-4C0-05-F1 COMPOSITE-J FACT 104D 36A/E/TR YES  
ELECTRICAL CONTROL PROPULSION CHECKOUT WIRING 620322 0 NO  
699725

FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. THE SUSTAINER PROPELLANT VALVES DID NOT GO INTO CONTROL. CONTROL SIGNAL WAS INADVERTENTLY WIRED TO GROUND WIRING WHICH WAS EJECTED AT T ZERO.

SYSTEM EFFECT-NONE.

VEHICLE EFFECT-NONE.

CORRECTIVE ACTION-VALVE CONTROL CIRCUITRY WAS PROPERLY WIRED.

PROPL INTERFACE-GSE AA62-0045/P5-4C0-04-F1 COMPOSITE-J FACT 104D 36A/E/TR YES  
ELECTRICAL CONTROL PROPULSION CHECKOUT WIRING 620317 0 NO  
699726

FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. THE SUSTAINER FLIGHT LOCK-IN RELAY DID NOT PICK-UP WHICH RESULTED IN CUTOFF. THE RELAY FAILED TO PICK-UP BECAUSE REVERSAL OF CABLE CONNECTIONS TO 866 NO 1 AND 2 RECEPTACLES PREVENTED PROPER GENERATION OF CIRCUITRY LOGIC.

SYSTEM EFFECT-OPERATION STOPS PREMATURELY.

18 JUN 1988

GENERAL DYNAMICS  
CONVAIR DIVISION

## DIFFICULTIES REVIEW-PROPELLION INTERFACE SYSTEM-GSE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	BITC TIME DIF	PRI OTH	VENOR NAME VENDOR PART NO
VEHICLE EFFECT-COMPONENT DELAYED.	THE COMPOSITE WAS DELAYED AND RECYCLED 68 MINUTES.					699932
CORRECTIVE ACTION-SIGNALATOR CABLES WERE INSTALLED CORRECTLY.						
PROPL INTERFACE-GSE ELECTRICAL CONTROL	AAG0008/P0-4CBN-07-104/C1 PROPELLION CHECK OUT WIRING	COMPOSITE-FBD/DPL 611288	104D 601215	38A/ETR -90	YES NO	699933
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. THE ENGINE TANKS DID NOT VENT WHEN THE SIGNAL WAS TRANSMITTED. FAILURE TO VENT WAS CAUSED BY A REDUNDANT JUMPER WIRE IN THE PRESSURIZATION CIRCUITRY.						
SYSTEM EFFECT-OPERATION DOES NOT START.						
VEHICLE EFFECT-NONE.						
CORRECTIVE ACTION-THE TANKS WERE VENTED BY MOMENTARILY REMOVING MISSLE D.C. POWER. THE JUMPER WAS REMOVED AFTER THE TEST.						
PROPL INTERFACE-GSE ELECTRICAL CONTROL	AAG1-0090/P2-4ND-Q1-111 PURGE RESET CIRCUIT	COMPOSITE-FBD/DPL 610710	111D 601215	12/ETR -90	YES NO	699935
FAILURE MODE-OUT OF TOLERANCE. A WIRING ERROR IN THE PURGE RESET CIRCUIT CAUSED THE FUEL PRE-VALVE AND FILL AND DRA IN VALVE LIGHTS ON THE PURGE PANEL TO BE INOPERATIVE.						
SYSTEM EFFECT-NONE.						
VEHICLE EFFECT-NONE.						
CORRECTIVE ACTION-THE PURGE RESET CIRCUIT WIRING WAS CORRECTED.						
PROPL INTERFACE-GSE ELECTRICAL CONTROL	AAG0-0159/P2-402-00-91	COUNTDOWN	91D 601215	12/ETR -90	YES NO	699937
FAILURE MODE-ERRATIC OPERATION. AN RCC DISCRETE WAS GENERATED BY THE BOOSTER SYSTEM PRIOR TO ENGINE START.						
SYSTEM EFFECT-IMPROPER DISCRETE SIGNALS.						
VEHICLE EFFECT-(COUNTDOWN DELAYED). 10 MINUTES HOLD AND 8 MINUTES RECYCLE.						
CORRECTIVE ACTION-THE RCC BACKUP CIRCUITRY WAS DEACTIVATED.						

PAGE 0001

**PROPELLANT LOADING SYSTEM**

**GSE**

**DIFFICULTIES REVIEW**

DIFFICULTIES REVIEW PROPELLANT UTIL/LOADING SYSTEM GSE

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GENERAL DYNAMICS  
CONVAIR DIVISION

18 JUN 1966

DIFFICULTIES REVIEW-PROPELLANT UTIL/LOADING SYSTEM-68E

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
PROPELLANT LOADING-6DC-68E FTA4972/PK-303-00-04	COUNTDOWN	4C 690187	18 -480	YES NO		699361
FAILURE MODE-OUT OF TOLERANCE. TANKING WAS SLOW. CAUSE UNKNOWN.						
SYSTEM EFFECT-NONE.						
VEHICLE EFFECT-COUNTDOWN DELAYED. TOTAL DELAY 20 MINUTES.						
CORRECTIVE ACTION-UNKNOWN.						
PROPELLANT LOADING-6DC-68E FAR-CI-9B-B40-021 LIQUID HYDROGEN FLOW CONTROL VALVE 59-02109-1 LOX FEED SWITCH	FAR LIQUID HYDROGEN FLOW CONTROL VALVE 59-02109-1 SWITCH	690715 59-02109-1	ETR	YES NO	55-02109-1	699360
FAILURE MODE-CONTAMINATION. THE SWITCH FAILED TO FUNCTION WHICH THE VALVE CLOSED. EXAMINATION REVEALED CORROSION AND PITTING OF SWITCH CONTACT SURFACES. CORROSION WAS DUE TO MOISTURE ENTERING THE ATMOSPHERE VENT OF THE VALVE OVER AN EXTENDED PERIOD OF INACTIVITY.						
CORRECTIVE ACTION-THE FAILURE WAS CONFIRMED. IT WAS RECOMMENDED THAT THE FLOW CONTROL VALVE BE PROTECTED FROM MOISTURE DURING PERIODS OF INACTIVITY.						
PROPELLANT LOADING-6DC-68E MACAPE11TD/P3-4BN-03-285 LOX FEED	COMPOSITE-FRO/DPL 690630	2210 -186	ETR NO	YES NO	699364	
FAILURE MODE-OUT OF TOLERANCE. MEASUREMENT PILOT (LOX AT BREKAWAY VALVE) WAS AT -218.8 DEG. F., ABOVE THE RED LINE LIMIT OF -283 DEG. F. SIMILAR EFFECTS OCCURRED DURING PS-4BN-01-225.						
NOTES. INSULATION WAS ALSO ADDED TO THE LOX LINES.						
CORRECTIVE ACTION-HIGH TEMPERATURE ENVIRONMENT.						
SYSTEM EFFECT-COMPOSITE RESCHEDULED.						
VEHICLE EFFECT-COMPOSITE RESCHEDULED.						
PROPELLANT LOADING-6DC-68E AA89-QC12P4-THQ-01-4301 PROBE-LOX OVERFILL LOX FEED	COMPOSITE-FRO/DPL 690802	5301 690802	14	YES NO		
FAILURE MODE-FAIL DURING OPERATION. DURING AN EVALUATION OF THE AUTO TOPPING SYSTEM PROPER OPERATION WAS NOTED THROUGH SIX CYCLES. ON THE SEVENTH, THE OVERFILL PROBE PICKED UP CUTTING UP SPRING WAS MAINTAINED MANUALLY.						

GENERAL DYNAMICS  
CONVAIR DIVISION

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DIFFICULTIES REVIEW—PROBLEMS IN THE USE OF THE BIBLICAL GREEK

TEST/REPORT NUMBER SUB-SYSTEM	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PAS OTH	VENOR NAME VENOR PART NO
STATION SUB-SYSTEM	FAILED COMPONENT NAME				

FAILURE MODE-ESTERHAL LEAK. DURING TOPPING A LOX LEAK WAS NOTED IN THE LOX AREA. AFTER DETANKING, IT WAS DISCOVERED THE LEAK WAS ORIGINATING FROM A FRACTURED TRANSDUCER.

EFFECTS

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699308  
NO  
NO  
1.4  
5301  
COMPOSITE-FR8/DPL  
AA93-UD12/F4-7BN-03-9301  
LOX FEED

FAILURE MODE-OUT OF SPECIFICATION. THE LOX TOPPING SYSTEM WOULD NOT MAINTAIN LOX TEMPERATURE BELOW THE MAXIMUM REDUCING LIMIT. THE LM2 BACCOOLER AND THE AUTOMATIC LOX TOPPING SYSTEM WERE OPERATING NORMALLY AND AS DESIGNED.

SYSTEM EFFECT-NONE. LOW TEMPERATURE COULD NOT BE MAINTAINED BELOW THE MAXIMUM ZERO LINE LIMIT. THIS CONDITION DID NOT PRECLUDE SATISFACTION OF DUAL TANKING TEST OBJECTIVES.

VEHICLE EFFECT-NONE.

CORRECTIVE ACTION - HOME

PROPELLANT LOADING -CDC-588 AAGS-0022/P4-TBN-U1-5301  
 BYPASS VALVE  
 BLOX FLED  
 27-02831-11  
 NO  
 YES PACIFIC  
 450121  
 #301  
 COMPOSITE-FRO/OPL  
 14  
 689303

FAILURE MODE-EXTERNAL LEAK. THE LOC 818 COCKPIT BAGAGES VALVE LEAKED DURING LOX TANKING.

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GENERAL DYNAMICS  
COMMUNICATION

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BRIEFING SHEET REVIEW-POINT-TO-POINT UTIL LOADIN SYSTEMS-GEN

SYSTEM SUB-SYSTEM		TEST/REPORT NUMBER FAILED COMPONENT NAME	OIF DATA SOURCE PART NUMBER	VEHICLE DATE DFTN	SITE DFTN	FRI DFTN	VENDOR NAME PART NO
PRECOOLANT COOLER-DOC GSE	AAGH-Q008/P3-401-UO-688	COUNTDOWN	2000 64108	ETRN -180	YES	NO	FLTER

FAILURE MODE - CONTAMINATION. FAILURE TO SET 100 PCT LOAD AT PRESCRIBED TIME WAS ATTRIBUTED TO FILTER ICING.

SYSTEM EFFECTIVENESS ASSESSMENT IN PNEUMATOLOGY

VEHICLE EFFECT-COUNTDOWN DELAYED. THIS PROBLEM CONTRIBUTED TO AN 11 MIN HOLD AND 5 MIN RECYCLE. A FURTHER 1 MIN HOLD WAS INCURRED IN THE SECOND (UNSUCCESSFUL) EFFORT TO LOAD LOR.

CORRECTIVE ACTS. — WEDNESDAY TO SUNDAY.

THE VANE-DRIVE BELT OF PUMP LC TO FREEZE TO THE PULLEYS. WHEN THE MOTOR WROTE OFF, THE VANE-DRIVE BELT OF PUMP LC TOOK A LEAK. A LEAK CAUSED THE FAILURE MODE - ETERNAL LEAK. A LEAK CAUSED THE FAILURE MODE - ETERNAL LEAK.

THE SYSTEM EFFECT-OPERATION DOES NOT START, THE PUMP WOULD NOT OPERATE, ATLAS LOX TOPPING COULD NOT BE ACCOMPLISHED. THE TEMPERATURE AT THE LOW REFRIGERANT VALVE WAS NOT WITHIN RED LINE.

VEHICLE EFFECT-MPHONE. HOWEVER, EARLIER IN THE COUNTDOWN (-4000 SECONDS) THERE WAS A HOLD OF 1A MINUTES WHILE A SUSPECTED LEAK IN THE LOX TRANSFER UNIT WAS INVESTIGATED.

COOPERATIVE ACTIVITIES—THE CENTRALIZED SERVICE

PROPELLANT LOADING-SOC-69C A154-003&FAR-CT-48-180-02A  
PUMP 1, SEAL  
LOCK FEED

THE FAILURE MODE-INTERNAL LEAK. INSPECTION INDICATED THE POSSIBILITY THAT A CANISTER SEAL BETWEEN THE LOG PUMPS AND BEARER

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VEHICLE USE ECONOMIES AND INEFFICIENCIES.

05-05888  
FAR 404082 ETR 118  
ON 413 02884  
P-16-10604  
PROTELLIN LOADSHE-60-C-082  
DTR AND NDT

FAILURE MODE-OUT OF SPECIFICATION. AN ATTEMPT TO BACK OFF THE NUTS TO EQUALIZE THE SPIN OF THE STUDS RESULTED IN A

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DIFFICULTIES REVIEW-PROPELLANT UTIL/LOADING SYSTEM-GSE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE	SITE DIF TIME	PRI OTH	VENDOR NAME VENDOR PART NO
LLING AND SEIZURE. FAILURE OF THE STUD AND NUT ASSEMBLIES WAS CAUSED BY THE COMBINATION OF AN OUT OF SPECIFICATION C CONDITION OF THE STUD AND THE NUT.						

CORRECTIVE ACTION-SURVEY TA-64 WAS ISSUED JUNE 9 1984 TO F AND CD-IR ALL STUDS OF PIN 87-42906-018 THROUGH -021. 50 STUDS WERE WRITTEN UP.

PROPELLANT LOADING-GDC-GSE LV-63-58-148F  
STUD AND O NUTS  
LOX FEED

FAILURE MODE-OUT OF SPECIFICATION. AN ATTEMPT TO BACK OFF THE NUTS TO EQUALIZE THE GRIP OF THE STUDS RESULTED IN SA LLING AND SEIZURE. FAILURE OF THE STUD AND NUT ASSEMBLIES WAS CAUSED BY THE COMBINATION OF AN OUT OF SPECIFICATION C CONDITION OF THE STUD AND THE NUT.

CORRECTIVE ACTION-SURVEY TA-64 WAS ISSUED JUNE 9 1984 TO F AND CD-IR ALL STUDS OF PIN 87-42906-018 THROUGH -021. 50 STUDS WERE WRITTEN UP.

PROPELLANT LOAD 196-GDC-GSE A/63-0050/F6-HO-02-GAC2  
VALVES  
LOX FEED

FAILURE MODE-EXTERNAL LEAK. VALVER LR-2 AND LR-4 IN THE LOX TRANSFER UNIT LEAKED DURING LOX TANKING.

SYSTEM EFFECT-LOW TEMPERATURE ENVIRONMENT. THE LOX LEAKS CAUSED THE FOLLOWING PROBLEMS. LOSS OF CONTROL PRESSURE AND OPERATIONAL POWER TO THE LOX TRANSFER UNIT; PUMP LC WAS FROZEN AND INOPERATIVE; AND PUMP LB OUTLET VALVE WAS PROBE N OPEN.

VEHICLE EFFECT-COMPOSITE DELAYED. HOLD TIME WAS 18 MINUTES.

CORRECTIVE ACTION-REPLACED VALVEA LR-2 AND LR-4 AFTER THE TEST.

PROPELLANT LOAD 196-GDC-GSE A/63-0050/F6-HO-02-GAC2  
FILTER, GASKET  
LOX FEED

FAILURE MODE-EXTERNAL LEAK. THE GASKET IN THE LP-1 FILTER FAILED CAUSING EXCESSIVE LEAKAGE.  
SYSTEM EFFECT-NONE.

VEHICLE EFFECT-COUNTDOWN DELAYED. A 30-MINUTE HOLD WAS CALLED.

CORRECTIVE ACTION-THE FILTER CAP GASKET WAS REPLACED.

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DIFFICULTIES REVIEW-PROPELLANT UTIL/LOADING SYSTEM-SOE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	UIP DATA SOURCE PART NUMBER	VEHICLE PART NUMBER	SITE DATE DFT TIME DFT	PRI OTH	PRI VENDOR PART NO VENDOR PART NO
PROPELLANT LOAD ING-SOC-C-635 LOX FEED	63-0680/93-402-00-168 LOX STORAGE TANK PRESSURIZATION VA LVC	COUNTDOWN 630794	COUNTDOWN 1430 63	143-0 630794	PRI NO	6306410
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. LOX STORAGE TANK FAILED TO PRESSURIZE. FAILURE CAUSED BY PRESSURIZ ATION VALVE FAILING TO OPEN.	SYSTEM EFFECT-OPERATION DOES NOT START. LOX LOAD DID NOT START.	VEHICLE EFFECT-COUNTDOWN DELAYED.	CORRECTIVE ACTION-VALVE OPENED MANUALLY.	PROPELLANT LOAD ING-SOC-C-635 60/A63-0680/93-402-00-143 LOX FEED	COUNTDOWN 143-0 630794	PRI NO
FAILURE MODE-FAIL DURING OPERATION. LOX RAPID LOAD FAULT REQUIRED THAT LOX BE LOADED BY THE FINE LOAD VALVE.	SYSTEM EFFECT-OPERATION TOO LONG. EXCESSIVE TIME REQUIRED TO LOAD LOX.	VEHICLE EFFECT-COUNTDOWN DELAY.	CORRECTIVE ACTION-HOLD UNKNOWN.	PROPELLANT LOAD ING-SOC-C-635 FAR-CI-9B-40-029P FILL AND DRAIN VALVE SCREW	FAR 630794 63-0680-1	PRI NO HYDRAULIC NO AIRBAG
FAILURE MODE-INTERNAL LEAK. MOTOR-OPERATED LOX FLOW CONTROL VALVE LEAKED 1.35 SCFM WITH 10 PSIG PURGE PRESSURE IN T HE CLOSED POSITION. TESTING REVEALED VALVE WOULD NOT OPEN COMPLETELY NOR WOULD IT CLOSE COMPLETELY. FAILURE WAS ATTR IBUTED TO THE INADEQUATE HOLDING ABILITY OF THE SET SCREW HOLDING THE CAN GOVERNING THE CLOSED POSITION OF THE VALVE . THIS SET SCREW SLIPPED FROM THE ORIGINAL ACTUATOR ROD SETTING GIVING CAN AN INCORRECT POSITION WHICH TRANSMITTED T O THE MICROSWITCH. THE MICROSWITCH ENERGIZED THE CIRCUIT AND STOPPED THE MOTOR. IN ADDITION, CONTAMINANTS ABOVE AL LOMABLE LIMITS WERE FOUND AND ALSO VALVE WAS NOT WIRED PROPERLY PER DMS 1814-8.	CONNECTIVE ACTION-RECOMMENDED PERFORM DESIGN REVIEW BY (A) SELECTING BIGGER SETSCREW, MAKE ALLOWANCE FOR LARGER ALL EN WRENCH. PRESENT TOOL TOO SMALL TO ALLOW SIGHT TORQUE. (B) USE 2 SET SCREWS FOR EACH CAN. ALSO RECOMMENDED TO REQ VCP VENDOR TO EXPLAIN WHY VALVE WAS WIRED INCORRECTLY AND SUBMIT COMPLETE AND DETAILED DMS.	PAGE 0009				

GENERAL DYNAMICS  
COMPUTER DIVISION

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SISTEMI DI GESTIONE INFORMATICA 101

SYSTEM SUB-SYSTEM		FRAT/REPORT NUMBER FAILED COMPONENT NAME	DIV DATA SOURCE PART NUMBER	VEHICLE DATE DIFF	SITE TIME DIFF	PART GTH	VENDOR NAME VENDOR PART NO
PROPELLANT LOADING-EDC-008 FARCT-16-4U-013P FILL AND DRAIN VALVE SEAL	LOW FEED		FAR 21-0101A-91	030181	STR	YES STRATOS	NO 16-195-01

FAILURE MODE-STRUCTURAL - THE LOX FILL AND DRAIN VALVE LEAKAGE RATE WAS APPROX 800 SCIM WITH 80 PSIG GHR PRESSURE APPLIED TO THE CYLINDRICAL SIDE OF THE BUTTERFLY. ALLOWABLE LEAKAGE IS 5 SCIM. THE KEL-F LIPSEAL ON THE VALVE BUTTERFLY PLATE WAS CRACKED. UNDER TEST THE SEAL WAS FOUND TO BE OVERLY BRITTLE AND FAILED TO MEET ANY OF THE GIVEN REQUIREMENTS.

CORRECTIVE ACTION-REL FAILURE ANALYSIS GROUP RECOMMENDED VENDER BE INFORMED OF THE KEL-F L  
LIPAREAL AND DIRECTED TO TURNOFF OF INCUBATOR TO MAINTAIN A HIGH LEVEL OF QUALITY BE MAINTAINED.

PROPELLANT LOADING-GDC-6SE FAR-IT-58-40-C10P  
FILL AND DRAIN VALVE SEAL

FAILURE MODE-CONTAMINATION. METAL PARTICLE CONTAMINATION DAMAGED THE KEL-F LIPSEAL ON THE ACTUATOR PISTON AND THE TURBONODE PISTON OF THE VALVE, CAUSING THE VALVE TO LEAK DURING ACCEPTANCE TESTING. THE CONTAMINATION WAS A RESULT OF CHAMBER CLEANUP PROCESSES.

CORRECTIVE ACTION-RELIABILITY FAILURE ANALYSIS GROUP INITIATED QC CORRECTIVE ACTION BY INFORMING 60/C FACTORY PERSONNEL OF THE 1A1 METAL PARTICLE CONTAMINATION. (b) INADEQUATE CLEANING PROCESSES AND (c) THE REQUIREMENT FOR REJECTION OF CONTAMINATED VALVE ASSEMBLY BEFORE ASSEMBLY. (REF. REL ACTION RPT CT-98-03-3668). ALSO REQUESTED REASON OF REJECTION

PROPELLANT LOADING -60C-GSE AASZ-002/FC-48N-01-213  
LOX STORAGE TANK PRESSURE REGULATOR  
LOW FEED

FAILURE MODE-OUT OF TOLERANCE. THE LOW STORAGE TANK PRESSURE DEACTIVATED CONTINUOUSLY DURING THE TEST. THIS PROBLEM WAS TRACED TO THE TANK REGULATOR.

SYNTHETIC EFFECTS-OPERATION TOO LOW

**CORRECTIVE ACTION REPLACES THE REGULATION.**

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SCIENTIFIC DYNAMICS

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SYSTEM	TEST/REPORT NUMBER	DIR DATA SOURCE	VEHICLE	SITE	PRI VENDOR NAME
SUB-SYSTEM	FAILED COMPONENT NAME	PART NUMBER	DATE DISP	TIME DISP	OTH VENDOR PART NO
PROPELLANT LOADING-60C-684	AEGG-QT08/PR-4BN-02-176	COMPOSITE-FRQ/DPL	1780	KTR	YES

LOW FEES

FAILURE MODE-STRUCTURAL. THE RUPURE DIAC IN THE 2 INCH LOX TOPPING LINE WAS RUPTURED BY WATER HAMMER. THIS SAME FA  
ILURE OCCURRED ON FIRST TANKING, 7 AUGUST 1969.

SYSTEM EFFECT-GENERATION BYTES PREMATURELY TERMINATED BY THIS FAILURE.

VEHICLE EFFECT-ECONOMIC ASPECTS AND INSTITUTIONAL-ED.

CORRECTIVE ACTION-SUCCESSFUL FIX MADE BY ADDING 30 FEET OF LINE BETWEEN DISC AND TOPPING LINE. RUPTURE DISC REPLACE  
D.

PROPELLANT LOADING-60C-6SE A182-0081/12-48N-02-178  
RUPTURE DISC

FAILURE MORE-STRUCTURAL. DURING LOX TANKING THE RUPURE DISC IN THE 2-INCH TOPPING LINE WAS RUPTURED ON TWO OCCASIO

PROPE\_LANT LOADING-605-638 FAR-190-9C-116  
CHIEF OF STAFF  
NO ADGASA  
YES SOUTHWESTERN  
660777

FAILURE MODE-STRUCTURAL. THE CHECK VALVE USED IN THE LOX TOPPLING LINE, TO PREVENT LOSS OF LOX AFTER TOPPLING, FAILED TO OPEN DUE TO THE WEIGHT AND IMPACT FORCED UP FROM NORMAL LOADS. WEAR AND DEBRIDEMENT OF THE VALVE FROM OPENING.

THE JOURNAL OF CLIMATE

PROPELLANT LOADING...60-66 AREA-0702/02-4BM-01-178  
TOPPING LINE RUTURE DISC

FAILURE MODE-STRUCTURAL- THE RUPTURE DISC IN THE 2 INCH LON TOPPING LINE WAS RUPTURED BY WATER HAMMER.

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## DIFFICULTIES REVIEW-PROPELLANT UTIL/LOADING SYSTEM-602

SYSTEM SUB-SYSTEM	TEST/TEST-NUMBER FAILED COMPONENT NAME	QIF DATA SOURCE PART NUMBER	VEHICLE DATE OFP	SITE TIME OFP	PRI 5TH VENDOR PART NO	VENOR NAME
VEHICLE EFFECT-COMPOSITE ABORTED AND RESCHEDULED.						600000
CORRECTIVE ACTION-FAILED DISC HAS REPLACED.						600000
PROPELLANT LOADING-60C-60E AC28-Q783-P-48N-Q1-142 PUMP, LC LOX FEED		COMPOSITE-F90/F91 620620	1310 620620	ETR -1600	YES NO	
FAILURE MODE-FAILED DURING OPERATION. PUMP LC IN THE LOX TRANSFER UNIT FAILED DURING THE TANKING TEST.						
SYSTEM EFFECT-OPERATION STOP PREMATURELY. LOX LOADING WAS TERMINATED.						
VEHICLE EFFECT-COMPOSITE ABORTED AND RE-SCHEDULED.						
CORRECTIVE ACTION-UNKNOWN.						
PROPELLANT LOADING-60C-60E AC28-Q421/P-403-00-F1 RUPTURE DISC3 LOX FEED		COUNTDOWN 62342U	1310 62342U	ETR -1600	YES NO	600000
FAILURE MODE-STRUCTURAL. RUPTURE DISCS IN THE 2-INCH AND 6-INCH LOX TRANSFER LINES WERE BLOWN.						
SYSTEM EFFECT-DEPLETION OF LIQUID SUPPLY.						
VEHICLE EFFECT-COUNTDOWN ABORTED AND RESCHEDULED.						
CORRECTIVE ACTION-REPLACED RUPTURE DISCS WITH RELIEF VALVES.						
PROPELLANT LOADING-60C-60E CAPSAN 4-37%, P2-4HO-01-138 LOX TANKING LINE RUPTURE DISC LOX FEED		COMPOSITE-F90/F91 620420	1310 620420	ETR -1600	YES NO	600000
FAILURE MODE-STRUCTURAL. THE RUPTURE DISC IN THE TWO INCH LOX TANKING LINE RUPTURED.						
SYSTEM EFFECT-OPERATION STOP PREMATURELY. USE OF LOX TANKING SYSTEM TERMINATED FOR THIS TEST.						
VEHICLE EFFECT-NONE. FLIGHT LEVEL FOR REMAINDER OF THE TEST WAS MAINTAINED BY USE OF AMBIENT LOX THROUGH THE 6 INCH LINE.						
CORRECTIVE ACTION-0101 REPLACED AFTER TEST.						
PROPELLANT LOADING-60C-28E AC28-Q421/P-403-00-F1 RUPTURE Disc LOX FEED		COUNTDOWN 62242U	1040 62242U	ETR -1600	YES NO	600000
FAILURE MODE-STRUCTURAL. THE RUPTURE DISCS IN THE 2-INCH AND 6-INCH LOX TRANSFER LINES WERE BLOWN OUT AND THERE WAS						

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## DIFFICULTIES REVIEW-PROPELLANT UTIL/LOADING SYSTEM-GSE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DISP DATA SOURCE PART NUMBER	VEHICLE DATE DISP	SITE TIME DISP	PRI OTH	VENDOR NAME VENDOR PART NO
A LOW LOX LEVEL IN THE LOX STORAGE TANK.						699940
SYSTEM EFFECT-DEPLETION OF LIQUID SUPPLY. LOX TANKING HAD TO BE STOPPED DUE TO THE BLOWN RUPTURE DISCS.						
VEHICLE EFFECT-COUNTDOWN ABORTED AND RESCHEDULED. TEST WAS TERMINATED AT 1-30 MINUTES.						
CORRECTIVE ACTION-RUPTURE DISCS WERE REPLACED WITH RELIEF VALVES.						
PROPELLANT LOADING-GDC-GSE AEG2-0421/PG-203-00-F1 LOX FEED	COUNTDOWN 620420	1040 -1600	36A NO	YEA NO		699924
FALLURE MODE-STRUCTURAL. PROPELLANT LOADING HINDERED BY BLOWN RUPTURE DISCS IN 2 INCH AND 0 INCH LOX TRANSFER LINES.						
SYSTEM EFFECT-OPERATION TOO LOX.						
VEHICLE EFFECT-COUNTDOWN ABORTED AND RESCHEDULED.						
CORRECTIVE ACTION-ALL RUPTURE DISCS REPLACED BY RELIEF VALVES.						
PROPELLANT LOADING-GDC-GSE AEG2-0421/PG-202-00-104 CHECK VALVE, SEAL LOX FEED	COUNTDOWN 620411	1040 NO	ETRN NO	YES NO		699944
FALLURE MODE-EXTERNAL LEAK. DURING THE LAUNCH ATTEMPT IT WAS NOTED THAT THE CHECK VALVE DRAIN STREAM OF THE 6 INCH LINE FILTER HAD A LEAKY SEAL.						
SYSTEM EFFECT-NONE.						
VEHICLE EFFECT-NONE.						
CORRECTIVE ACTION-LINK NORN.						
PROPELLANT LOADING-GDC-GSE AEG2-0410/83-401-00-100 VALVE LOX FEED	COUNTDOWN 620411	1040 NO	8-3 NO	YES NO		699945
FALLURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. VALVE 0-81 (LOX STORAGE TANK AUTOMATIC VENT) FROZEN.						
SYSTEM EFFECT-OPERATION DOES NOT START. STORAGE TANK COULD NOT BE VENTED TO ALLOW KISSEL LOX TANK DRAIN TO START DURING COUNTDOWN HOLD.						
VEHICLE EFFECT-COUNTDOWN DELAY.						
CORRECTIVE ACTION-MANUAL VALVE 0-10 OPENED TO ALLOW COMPLETION OF LOX DRAIN SEQUENCE.						
						PAGE 0008

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## DIFFICULTIES REVIEW-PROPELLANT UTIL/LOADING SYSTEM-666

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI VENDOR NAME OTH VENDOR PART NO
PROPELLANT LOADING-6DC-666 AABR-0086/PB-4BN-0C-183 LOX SYSTEM DUCTING LOX FEED		COMPOSITE-FRD/OPL 020410	183D 020410	ETR	YES NO
FAILURE MODE-EXTERNAL LEAKS. SEVERAL LEAKS WERE DISCOVERED IN THE LOX LOADING SYSTEM DURING THE TANKING TEST. SYSTEM EFFECT-DEPLETION OF LIQUID SUPPLY.					
VEHICLE EFFECT-NONE.					
CORRECTIVE ACTION-LOX LEAKS REPAIRED AND CHECKED.					
PROPELLANT LOADING-6DC-666 AABR-0026/P2-4BN-01-121 LOX FEED	LOX LINE CHECK VALVE	COMPOSITE-FRD/DFL 020109	181D 020109	ETR	YES NO
FAILURE MODE-EXTERNAL LEAK. DURING THE LOX TANKING TEST, A LEAK WAS DISCOVERED AT THE LOX MAIN LINE CHECK VALVE. INVESTIGATION REVEALED THAT THE FLANGE BOLTS WERE LOOSE.					
SYSTEM EFFECT-NONE.					
VEHICLE EFFECT-NONE.					
CORRECTIVE ACTION-THE BOLTS WERE TIGHTENED.					
PROPELLANT LOADING-6DC-666 AABR-0031/P3-5BN-01-40 LOX FEED	LOX BLASTTANK VENT	COMPOSITE-FRD/DPL 020104	40E 020104	ETR	YES NO
FAILURE MODE-CONTAMINATION. ICING OF DIFFUSER RESTRICTED VENTING OF THE LOX BLAST TANK.					
SYSTEM EFFECT-HIGH TEMPERATURE ENVIRONMENT. THE LOX BLAST WAS DELIVERED EXCEEDING THE REDLINE TEMPERATURE FOR PROPULSION REQUIREMENTS.					
VEHICLE EFFECT-NONE. NORMAL SLUG SEQUENCE PURGING OF DIFFUSER REMOVED ICE SLURRY. SECOND SLUG DELIVERED AT SATISFACTORY TEMPERATURE.					
CORRECTIVE ACTION-NONE.					
PROPELLANT LOADING-6DC-666 A-9B-40-159F LOX FEED	DISCONNECT COUPLING, SEAL	FAR 87-28077-3	611226 020104	ETR	YES PEACOCK NO
FAILURE MODE-EXTERNAL LEAK. COUPLING ALLOWED LEAKAGE PAST THE LIP SEAL. FAILURE WAS ATTRIBUTED TO THREE FACTORS. (1) AN ECCENTRICALLY LOCATED SHIM THAT WAS BENT WHEN THE MALE PROBE WAS ENGAGED IN THE DISCONNECT, DUE TO IMPROPER SHIM INSTALLATION. (2) SCORCH MARKS ON THE SEALING SURFACE OF THE LIP SEAL PROBABLY CAUSED BY IMPROPER ASSEMBLY. (3) FAU					

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## DIFFICULTIES REVIEW-PROPELLANT UTIL/LOADING SYSTEM-68E

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PAT DIF/OTH	VENDOR NAME VENDOR PART NO
<b>LIT KEL-F LIP SEAL MATERIAL DUE TO IMPROPER SINTERING THAT CREATED VOIDS IN THE FINISHED PRODUCT.</b>						
						699837
CORRECTIVE ACTION-A PLANNING CARD CHANGE WAS MADE TO INCLUDE THE FOLLOWING. INSPECTION TO ENSURE THAT LIP SEAL 27-2 8866-Y AND SHIM 27-29084-9 ARE PROPERLY INSTALLED AND CENTERED PER BLUEPRINT, AND THAT NO LUBRICANT IS USED WITHIN THE LOX CLEAN AREAS OF THE DISCONNECT.						
PROPELLANT LOADING-6DC-68E AAS1-0322/PZ-492-00-117 LOX FEED	COUNTDOWN 87-27098-001	611022	ETR -1600	YES NO		699838
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. DURING LOX TANKING PREPARATIONS, LC-2 SOLENOID VALVE FAILED TO OPERATE.						
SYSTEM EFFECT-NONE.						
VEHICLE EFFECT-NONE.						
CORRECTIVE ACTION-LC-2 SOLENOID VALVE WAS CHANGED DURING A HOLD FOR ANOTHER SYSTEM.						
PROPELLANT LOADING-6DC-68E A-98-36-031F LOX FEED	FAR LIQUID OXYGEN TANK INLET VALVE	610903	ETR	YES HYDRAULICS NO 132K52		699839
FAILURE MODE-CONTAMINATION. THE VALVE POSITION INDICATING SWITCH FAILED TO PROVIDE THE PROPER SIGNAL WHEN THE VALVE WAS OPENED. FAILURE WAS CAUSED BY CALLING OF THE MICROSWITCH ACTUATOR SHAFT TO THE SUPPORTING BRACKET.						
SYSTEM EFFECT-NONE.	THIS UNIT IS SCHEDULED FOR PHASE OUT.					
VEHICLE EFFECT-COUNTDOWN ABORTED AND RE_SCHEDULED.						
CORRECTIVE ACTION-THE LA BY-PASS VALVE WAS REPLACED AFTER THE TEST WAS TERMINATED.						
PROPELLANT LOADING-6DC-68E AAS1-0317/PZ-403-00-111 LOX FEED	COUNTDOWN 610901	1110	ETR -900	YES NO		699840
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. BYPASS VALVE WAS INOPERATIVE PRIOR TO LOX TANKING.						
SYSTEM EFFECT-OPERATION DOES NOT START. LOX TANKING COULD NOT BE STARTED DUE TO FAILURE OF THE LA BY-PASS VALVE.						
VEHICLE EFFECT-COUNTDOWN ABORTED AND RE_SCHEDULED.						
CORRECTIVE ACTION-THE LA BY-PASS VALVE WAS REPLACED AFTER THE TEST WAS TERMINATED.						

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DIFFICULTIES REVIEW-PROPELLANT UTIL/LOADING SYSTEM-686

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF TIME DIF OTH	SITE DIF TIME DIF OTH	PRI VENDOR NAME VENDOR PART NO
PROPELLANT LOADING-6DC-686 AAF6-0137/P6-403-00-111 LOX FEED	LA-1 SOLENOID VALVE	COUNTDOWN	1110 610601	ETR -3640	YES NO
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. LOX TRANSFER UNIT VALVE LA-1 WOULD NOT FUNCTION DURING LOX TANKING PREPARATIONS.					
SYSTEM EFFECT-OPERATION STOPS PREMATURELY. LOX TANKING PREPARATIONS COULD NOT BE COMPLETED DUE TO THE FAILURE OF VEHICLE EFFECT-LVCS LA-1.					
CORRECTIVE ACTION-VALVE LA-1 WAS RELACED.					
PROPELLANT LOADING-6DC-686 FAR-08-56-088 LOX FEED	SOLENOID OPERATED VALVE SEAL	FAR	610601	ETR	YES AIRMATIC NO S-3-250
FAILURE MODE-STRUCTURAL. THE PNEUMATIC PRESSURE VALVE IS USED TO OPEN AND CLOSE THE LOX BY-PASS VALVE. THE PRESSURE VALVE FAILED TO CLOSE THE BY-PASS VALVE. THE SEALS WERE BADLY AGED. FAILURE WAS DUE TO USE OF THE VALVE PAST THE OPERATING LIFE OF ITS RUBBER COMPONENTS.					
CORRECTIVE ACTION-RECOMMENDED GD/C TO OVERHAUL ANY SUBJECT VALVE USED PAST THE OPERATING LIFE OF ITS RUBBER COMPONENTS.					
PROPELLANT LOADING-6DC-686 AE62-0481/P6-4CBN-04-104-2 LOX FEED	COMPOSITE-FBD/DPL VALVE	10420 610606	ETR	YES NO	699771
FAILURE MODE-FAIL DURING OPERATION. AN INOPERATIVE VALVE IN THE ATLAS LOX TRANSFER SYSTEM FRECLUDED ATLAS LOX TANKING.					
SYSTEM EFFECT-OPERATION DOES NOT START.					
VEHICLE EFFECT-COMPOSITE ABORTED AND RECHEDULED.					
CORRECTIVE ACTION-UNKNOWN.					
PROPELLANT LOADING-6DC-686 AF68-1481/P6-4CBN-02-104-2 LOX FEED	COMPOSITE-FAC/DPL DUCTING	10420 610705	ETR	YES NO	699880
FAILURE MODE-EXTERNAL LEAK. TRIPLE TANKING COULD NOT BE COMPLETED. AS LEAKS IN THE LOX TRANSFER SYSTEM PREVENTED LOADING.					

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DIFFICULTIES REVIEW-PROPELLANT UTIL/LOADING SYSTEM-68E

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PMSI OTN	VENDOR NAME VENDOR PART NO
						689942
SYSTEM EFFECT-OPERATION DOES NOT START. LOX TANKING WAS NOT ACCOMPLISHED.						
VEHICLE EFFECT-COMPOSITE ABORTED AND RE-SCHEDULED.						
CORRECTIVE ACTION-UNKNOWN.						
PROPELLANT LOADING-GDC-68E FAR-CT-48-001 SWITCH	FAR 68-68118-0	610283	36A	YES	MASTER SPECIAL NO TV	689727
LOX FEED						
FAILURE MODE-CONTAMINATION. THE SWITCH IS LOCATED ON THE LOX PANEL IN THE BLOCKHOUSE. THE SWITCH LIGHTS INDICATED 1 INTERMITTENT OPERATION, WHICH WAS CONFIRMED IN THE LABORATORY. DIRT AND SOLDER FLUX WERE FOUND IN THE SWITCH ACTIVATION MECHANISM, WHICH INTERFERED WITH ELECTRICAL CONTACT. THE SWITCH IS NOT SEALED.						
CORRECTIVE ACTION-ALL SWITCHES OF THIS TYPE HAVE BEEN REVORKED TO DESIGN CHANGES WHICH ELIMINATED THE POSSIBILITY OF F CONTAMINATION.						689943
PROPELLANT LOADING-GDC-68E AEGO-0937/P3-802-00-13 LOX TRANSFER PUMP SEAL	COUNTDOWN Y-888207-001	13E 010313	ETR -80D	YES NO		
LOX FEED						
FAILURE MODE-EXTERNAL LEAK. DURING LOX LOADING, THE TANKING WAS INTERRUPTED AT THE 95 PERCENT LEVEL WHEN THE BELT DR IVE TO PUMP LC DROKE. THE TROUBLE WAS TRACED TO A LEAKING SEAL ON THE PUMP WHICH CAUSED DETERIORATION OF THE DRIVE BELT IN LOX ENVIRONMENT. THIS BELT WAS A REPLACEMENT FOR ONE BROKEN 2 MARCH DURING LOX TANK TEST.						
SYSTEM EFFECT-OPERATION STOPS PREMATURELY. PUMPING CAPABILITY OF LOX TRANSFER SYSTEM HALTED BY PUMP FAILURE.						
VEHICLE EFFECT-COUNTDOWN DELAYED. 12 MINUTE HOLD CALLED DUE TO LOX PUMP FAILURE. LOX LOADING WAS COMPLETED BY PR ESSURIZING THE STORAGE TANK TO 40 PSIG.						
CORRECTIVE ACTION-LEAKING PUMP SEAL WAS CORRECTED. THIS SAME PROBLEM OCCURRED DURING THE LOX TANKING TEST ON 2 MARC H 1968. THE BELT WAS REPLACED BUT THE LEAKING SEAL WAS NOT DISCOVERED.						
PROPELLANT LOADING-GDC-68E 9A-86-018 6HZ SLUG CHILL FILTER	FAR BT-022897-1	610281	ETR	YES	PERMANENT FILT NO ER	
LOX FEED						
FAILURE MODE-STRUCTURAL. FILTER FAILED AS IT WAS SUBJECT TO A REVERSE FLOW CONDITION OF EXPLOSIVE FORCE WHICH DESTROY ED THE STRUCTURAL INTEGRITY OF THE FINE SCREEN ELEMENT BY PERFORATING IT WITH HOLES. PRIOR TO THE FILTER FAILURE, THE 6 HZ SLUG CHILL GAS REGULATOR SHUT OFF VALVE, HAD EXPERIENCED AN EXTREMELY ABRUPT AND ABRUMLY SHUT OFF CAUSING SEVERE SHOCKING OF THE SYSTEM.						

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## DIFFICULTIES REVIEW-PROPELLANT UTIL/LOADING SYSTEM-GSE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	QIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
CORRECTIVE ACTION-NONE.						699605
PROPELLANT LOADING-EDC-65E SOLENOID VALVE	AEG0-0916/P3-101-00-00	COUNTDOWN 27-02100-001	SE 010224	EIR NO	YES NO	699647
LOX FEED						
FAILURE MODE-EXTERNAL LEAK. A MINOR LEAK WAS FOUND IN THE LOX GROUND FILL AND DRAIN VALVE OPEN SOLENOID.						
SYSTEM EFFECT-NONE.						
VEHICLE EFFECT-NONE.						
CORRECTIVE ACTION-SOLENOID WAS REPLACED.						
PROPELLANT LOADING-EDC-65E FTAT05/P3-5BN-02-00	COMPOSITE-FRD/OPL LOX HEAT EXCHANGER DRAIN VALVE SEA L	SE 601212	EIR NO	YES HYDRAULIC RELEASE		699636
LOX FEED						
FAILURE MODE-OUT OF TOLERANCE. A LOX LEAK WAS DISCOVERED AT THE LOX SLUG UNIT HEAT EXCHANGER MANUAL DRAIN VALVE. THE LEAK WAS DUE TO A BLOWN INLET FLANGE SEAL. IT WAS DETERMINED THAT ONE OF SIX ALLEN SCREWS USED TO RETAIN THE INLET FLANGE WAS INSUFFICIENTLY TORQUED, PERMITTING THE SEAL TO EXPAND AND ULTIMATELY FAIL.						
SYSTEM EFFECT-NONE.						
VEHICLE EFFECT-NONE. THE COMPOSITE WAS ABORTED DUE TO ANOTHER PROBLEM.						
CORRECTIVE ACTION-THE LOX SLUG UNIT HEAT EXCHANGER MANUAL DRAIN VALVE WAS REPLACED.						
PROPELLANT LOADING-EDC-65E FTAT05/P3-5BN-02-00	COMPOSITE-FRD/OPL SLUG UNIT REGULATOR INLET FLANGE & EAL	SE 601212 27-02223-39	EIR NO	YES NO		699634
LOX FEED						
FAILURE MODE-EXTERNAL LEAK. DURING ATTEMPTED LOX TANKING TEST, EXCESSIVE LEAKAGE WAS NOTED AT THE RACO SEAL ON THE SLUG UNIT REGULATOR INLET FLANGE.						
SYSTEM EFFECT-NONE.						
VEHICLE EFFECT-NONE. THE COMPOSITE WAS ABORTED DUE TO ANOTHER PROBLEM.						
CORRECTIVE ACTION-THE SEAL WAS REPLACED.						
PROPELLANT LOADING-EDC-65E FTAT05/P3-5BN-02-00	COMPOSITE-FRD/OPL SLUG UNIT LOX TANK DRAIN VALVE B05 A SEAL	SE 601212 27-20398-7	EIR NO	YES NO		699635
LOX FEED						
FAILURE MODE-EXTERNAL LEAK. DURING ATTEMPTED LOX TANKING TEST, EXCESSIVE LEAKAGE WAS NOTED AT THE SLUG UNIT LOX TANK						
SYSTEM EFFECT-NONE.						

GENERAL DYNAMICS  
COINVEST DIVISION

18 JUN 1986

DIFFICULTIES REVIEW-PROPELLANT UTIL/LOADING SYSTEM-GSE

SYSTEM	TEST/REPORT NUMBER	DIV DATA SOURCE	VEHICLE	SITE	PRI	VEHICLE NAME
BUG-SYSTEM	FAILED COMPONENT NAME	PART NUMBER	DATE OFF	TIME OFP OTH	VENDOR PART NO	
MANUAL DRAIN VALVE BOSS SEAL.						698695
SYSTEM EFFECT-NONE.						
VEHICLE EFFECT-NONE. THE COMPOSITE WAS ABORTED DUE TO ANOTHER PROBLEM.						
CORRECTIVE ACTION-SEAL WAS REPLACED.						
PROPELLANT LOADING-6DC-68E FTAT03/P3-15N-02-08 LOX Toppings Riseroff DISCONNECT PLA NGE LOX FEED		COMPOSITE-FRD/DPL 6E	601212	ETR	YES NO	698695
FAILURE MODE-EXTERNAL LEAK. DURING ATTEMPTED LOX TANKING TEST, EXCESSIVE LEAKAGE WAS NOTED AT THE FLEX JOINT TO THE LOX Toppings Riseroff DISCONNECT FITTING. THE NARROW FLANGE ON THE FLEXJOINT WAS LATER FOUND TO BE INCORRECTLY MANUFACTURED.						
SYSTEM EFFECT-NONE.						
VEHICLE EFFECT-COMPOSITE ABORTED AND RESCHEDULED. LOX TANKING TEST WAS DELAYED ONE DAY.						
CORRECTIVE ACTION-THE FLEXJOINT WAS REPLACED.						
PROPELLANT LOADING-6DC-68E AAG0-0156/P2-4HC-01-91 VALVE LOX FEED		COMPOSITE-FRD/DPL 910	601207	-2100	YES NO	698696
FAILURE MODE-CONTAMINATION. LO2 WAS NOT REACHING THE VEHICLE THROUGH THE SIX INCH LINE DUE TO A FROZEN VALVE.						
SYSTEM EFFECT-OPERATION DOES NOT START. TANKING WAS NOT ACCOMPLISHED.						
VEHICLE EFFECT-COMPOSITE DELAYED. HOLD TIME WAS 25 MINUTES.						
CORRECTIVE ACTION-THE VALVE WAS LOOSENERED WITH WATER AFTER REMOVAL OF SOME OF THE INSULATION.						
PROPELLANT LOADING-6DC-68E AAG0-0150/P2-4SH-01-91 FILTER LOX FEED		COMPOSITE-FRD/DPL 910	601201	ETR	YES NO	698691
FAILURE MODE-EXTERNAL LEAK. LO2 MAIN LINE FILTER AT THE TEST STAND DEVELOPED A LEAK.						
SYSTEM EFFECT-NONE.						
VEHICLE EFFECT-NONE.						
CORRECTIVE ACTION-REPLACED ONE GASKET AND WELDED FLANGE NATING PLATES TO PROVIDE PARALLEL PLATES.						

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GENERAL DYNAMICS  
COINVAIR DIVISION

## DIFFICULTIES REVIEW-PROPELLANT UTIL/LOADING SYSTEM-GSE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	OFF DATA SOURCE PART NUMBER	VEHICLE DATE DIS	SITE TIME DIS	PRI OTH	VENDOR NAME PART NO
PROPELLANT LOADING-GSC-GSE AEGO-0750/PJ-101-00-04 LOX FEED	COUNTDOWN	4E 601126	ETR	YES NO		699931
FAILURE MODE-EXTERNAL LEAK. A LEAK WAS DISCOVERED IN THE 3-INCH LOX TOPPING LINE SWIVEL JOINT. SYSTEM EFFECT-NONE.						
VEHICLE EFFECT-COUNTDOWN ABORTED AND RESCHEDULED. COUNTDOWN ABORTED AT T-7 MINUTES DUE TO THE UNAVAILABILITY OF A S EPLACEMENT PART.						
CORRECTIVE ACTION-URG/HOMI.						
PROPELLANT LOADING-GSC-GSE AEGO-0750/PJ-101-00-04 LOX FEED	COUNTDOWN	4E 601126	12 -420	YES NO		699936
FAILURE MODE-EXTERNAL LEAK. LEAK IN SWIVEL JOINT OF 3 INCH LOX TOPPING LINE OF PROPELLANT LOADING SYSTEM. SYSTEM EFFECT-DEPLETION OF LIQUID SUPPLY.						
VEHICLE EFFECT-COUNTDOWN ABORTED. REPLACEMENT PART NOT AVAILABLE. ABORT CALLED AT T-7 MINUTES.						
CORRECTIVE ACTION-PART OBTAINED AND LOADING SYSTEM REPAIRED.						
PROPELLANT LOADING-GSC-GSE AEG-134/PZ-402-00-03 LOX FEED	COUNTDOWN FUSP LC	93D 601115	ETR -420	YES NO		699971
FAILURE MODE-OUT OF TOLERANCE. PROPER LOX LEVEL COULD NOT BE MAINTAINED WITH FUSP LC BECAUSE OF LOW OUTPUT. SYSTEM EFFECT-OPERATION TOO LOW. RIBBLE WAS LAUNCHED WITH 650 LB LOX SHORTAGE.						
VEHICLE EFFECT-NONE.						
CORRECTIVE ACTION-NONE. A DECISION WAS MADE TO GO AS IS.						
PROPELLANT LOADING-GSC-GSE AEGO-0134/PZ-402-00-03 LOX FEED	COUNTDOWN RUPTURE DISC	63D 601114	12 -420	YES NO		699972
FAILURE MODE-STRUCTURAL. FOR UNKNOWN REASONS, RUPTURE DISCS WERE BLOWN IN GROUND 2 IN AND 6 IN LOX LINES. SYSTEM EFFECT-COUNTDOWN DELAYED. IT WAS NECESSARY TO DETANK AND RETANK LOX. THERE WAS A TOTAL OF 151 MIN HOLD AND 65 MIN RECYCLE, BUT NOT ALL OF THE TIME LOSS IS ATTRIBUTED TO THIS PROBLEM.						

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## DIFFICULTIES REVIEW-PROPELLANT UTIL/LOADING SYSTEM-GSE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	OIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI DIF OTH	VENDOR NAME VENDOR PART NO
						699973
PROPELLANT LOADING-GSC-GSE AASG-0134/P2-402-00-03 LOX FEED	COUNTDOWN LOX TRANSFER UNIT INLET VALVE	SC0114 -660	010 -660	ETR NO	YES	699981
CORRECTIVE ACTION-RUPTURE DISCS WERE REPLACED.						
FAILURE MODE-CONTAMINATION. THE LOX TRANSFER UNIT INLET VALVE WAS FROZEN CLOSED.						
SYSTEM EFFECT-OPERATION DOES NOT START. LOX COLD NOT BE TANKED.						
VEHICLE EFFECT-COUNTDOWN DELAYED. THERE WAS A 15 MIN EXTENSION OF A HOLD WHICH WAS STARTED FOR ANOTHER REASON.						
CORRECTIVE ACTION-MORE REPORTED. VALVE WAS REPORTED OPEN AFTER 6 MINUTES.						
PROPELLANT LOADING-GSC-GSE AASG-0130/P2-401-00-56 LOX FEED	RUPTURE DISK	COUNTDOWN LOX OVERFILL PROBE	01022 -1060	ETR NO	YES	699978
FAILURE MODE-STRUCTURAL. DURING LOX TANKING THE 2 INCH RUPTURE DISC BLEW.						
SYSTEM EFFECT-OPERATION STOPS PREMATURELY. LOX TANKING WAS STOPPED AND THE COUNTDOWN HELD.						
VEHICLE EFFECT-COMPPOSITE DELAYED. THIRTEEN MINUTES OF HOLD TIME WAS REQUIRED TO REPLACE THE RUPTURE DISC.						
CORRECTIVE ACTION-THE RUPTURE DISC WAS REPLACED.						
PROPELLANT LOADING-GSC-GSE AASG-0077/P2-405-00-06 LOX FEED	COUNTDOWN LOX OVERFILL PROBE	010 01012	0-3 0-3	YES YES	YES	699948
FAILURE MODE-PREMATURE OPERATION. AT APPROXIMATELY THE SAME TIME LOX 90 PCT. FULL INDICATION WAS RECEIVED, THE LOX OVERFILL LIGHT BEGAN FLICKERING ON THE LAP AID FINALLY LOCKED UP.						
SYSTEM EFFECT-OPERATION & TOPS PREMATURELY. LOX FINE LOAD AND TOPPING VALVES WERE PREMATURELY CLOSED.						
VEHICLE EFFECT-COUNTDOWN DELAYED.						
CORRECTIVE ACTION-LOX WAS DRAINED AND THE ERHOBUS INDICATION JUMPED OUT. LOX LOAD WAS REINITIATED AND COMPLETED SATISFACTORILY.						
PROPELLANT LOADING-GSC-GSE AASG-0108/P2-501-00-06 LOX FEED	FNP SLUG CHILL LINE DUCTING	SI 00928	ETR NO	YES	NO	699982
FAILURE MODE-LEAK-INTERNAL. THE BB SLUG CHILL LINE WAS LEAKING.						

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GENERAL DYNAMICS  
CONVAIR DIVISION

18 JUN 1986

## DIFFICULTIES REVIEW-PROPELLANT UTIL/LOADING SYSTEM-GFE

SYSTEM SUB-SYSTEM	TEST / REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE	VEHICLE PART NUMBER	SITE	FRI	VENDOR NAME
				DATE OF TIME	CIP OTH	VENDOR PART NO
SYSTEM EFFECT-NONE.						

699801

VEHICLE EFFECT-PREMATURE PROPULSION SHUTDOWN. THE LOX LEAKAGE ON THE B2 LUBE OIL PUMP SHAFT CAUSING THE SHAFT TO SHUT OFF. LACK OF B2 LUBE OIL PRESSURE RESULTED IN PREMATURE TERMINATION OF THE PAF.

CORRECTIVE ACTION-B2L6 CHILL LINE LEAK WAS FIXED AND THE B2 ENGINE REPLACED.

PROPELLANT LOADING-GDC-GFE FTAGS61/P3-42H-02-48 OUTLET VALVE	COMPOSITE-FRD/DPL	490	E7R	YES	NO	
LOX FEED		600202				

FAILURE MODE-FAIL DURING OPERATION. LOZ TANKING TEST WAS CANCELED DURING PRECOUNT DUE TO DIFFICULTY WITH THE LOZ & TORSE TANK OUTLET VALVE.

SYSTEM EFFECT-OPERATION DOES NOT START.

VEHICLE EFFECT-COMPOSITE RE-SCHEDULED.

CORRECTIVE ACTION-TIME NODAY.

PROPELLANT LOADING-GDC-GFE FTAGS62/P3-402-00-44 LOX FEED	COUNTDOWN	440	E7R	YES	NO	
	600120	-2100				

FAILURE MODE-EXTERNAL LEAK. A SMALL MAGNITUDE LOX LEAK WAS REPORTED IN THE TRANSFER UNIT.

SYSTEM EFFECT-NONE.

VEHICLE EFFECT-NONE.

CORRECTIVE ACTION-NONE. THE PROBLEM WAS CONSIDERED MINOR AND IT HAS DECIDED TO GO AS IS.

PROPELLANT LOADING-GDC-GFE FTAGS62/P3-402-00-44 LOX FEED	COUNTDOWN	440	I3	YES	NO	
	600124	-2100				

FAILURE MODE-LEAK-EXTERNAL. 402 LEAK IN TRANSFER UNIT.

SYSTEM EFFECT-NONE.

VEHICLE EFFECT-NONE.

CORRECTIVE ACTION-NONE. CONTINUE COUNTDOWN.

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19 JUN 1964

## DIFFICULTIES REVIEW-PROPELLANT UTIL/LOADING SYSTEM-68E

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI DIF	OTH DIF	VENDOR NAME VENDOR PART NO
PROPELLANT LOADING-GDC-68E PTA6231/P3-4BN-01-12 LOX FEED	RUPTURE DISC	COMPOSITE-FRO/DPL 820 890888	E7R	YES NO			499897
FAILURE MODE-STRUCTURAL. TEST WAS UNSATISFACTORY DUE TO A RUPTURED DISC IN THE FILL LINE. SYSTEM EFFECT-DEPLETION OF LIQUID SUPPLY.							
VEHICLE EFFECT-COMPOSITE RE-SCHEDULED.							
CORRECTIVE ACTION-RUPTURED DISC WAS REPLACED.K							
PROPELLANT LOADING-GDC-68E PTA6175/P2-301-00-04 LOX FEED	OUTLET VALVE	COUNTDOWN 590924	9C -1660	E7R NO	YES NO		499898
FAILURE MODE-CONTAMINATION. THE LAI OUTLET VALVE COULD NOT BE CLOSED BECAUSE ICE HAD FORMED AROUND THE VALVE STEM. SYSTEM EFFECT-OPERATION TOO LOW. THE OPEN VALVE CAUSED A PARTIAL FLOW OF LOZ BACK INTO THE STORAGE TANK.							
VEHICLE EFFECT-COUNTDOWN DELAYED. THERE WAS A 10 MIN. HOLD AND 3 MIN. OF RECYCLE.							
CORRECTIVE ACTION-THE ICE WAS REMOVED BY LOZ HANDLING PERSONNEL.							
PROPELLANT LOADING-GDC-68E PTA6049/P2-301-00-11 LOX FEED	LOZ SUBCOOLED TOPPING LINE FILTER	FRF 590814	11C -420	E7R NO	YES NO		499916
FAILURE MODE-CONTAMINATION. THE FLIGHT LEVEL 96.8 TO 99.9 PCT. COULD NOT BE ACHIEVED WITH SUBCOOLED TOPPING BECAUSE OF AN ICE CLOGGED FILTER.							
SYSTEM EFFECT-OPERATION TOO LOW. THE SUBCOOLED TOPPING LINE COULD NOT BE USED, BUT THE LARGE LINE WAS AVAILABLE.							
VEHICLE EFFECT-COUNTDOWN DELAYED. THERE WAS A 29 MIN HOLD.							
CORRECTIVE ACTION-LOZ WAS TANKED ABOVE THE DESIRED LEVEL, THEN DRAINED TO MEET PUMP INLET TEMPERATURE REQUIREMENTS AT ENGINE BYPASS.							
PROPELLANT LOADING-GDC-68E PTA4422/P2-301-00-3 LOX FEED	PUMP	F4F 691217	SC -5340	12 NO	YES NO		
FAILURE MODE-FAIL DURING OPERATION. DURING LOX TANKING OPERATIONS, PUMP LC FAILS.							
SYSTEM EFFECT-OPERATION STOPS PREMATURELY. LOX TOPPING COULD NOT BE ACCOMPLISHED.							

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CONVAIR DIVISION

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DIFFICULTIES REVIEW-PROPELLANT UTIL/LOADING SYSTEM-93E

BATCH	TEST/REPORT NUMBER	DATA SOURCE	VEHICLE	SITE	PRI	VENOM NAME
BUS-BATCH	FAILED COMPONENT NAME	PART NUMBER	DATE DIF	TIME DIF	OTH	VENOM PART NO
						699979
VEHICLE EFFECT-NONE.	CORRECTIVE ACTION-THE PUMP WAS REPAIRED.					
PROPELLANT LOADING-GDC-63E FTA4422/PR-301-00-3 LOX FEED	FRP	3C 581217	XTR -3300	YES NO		699980
FAILURE MODE-OUT OF TOLERANCE. DURING PRE-TANKING OPERATIONS, VALVE LC-1 DID NOT CHECK OUT SATISFACTORILY. SYSTEM EFFECT-LOSS OF REDUNDANCY.	CORRECTIVE ACTION-VALVE LC-2 WAS USED.					
PROPELLANT LOADING-GDC-63E FTA4101/P1-208-00-3 LOX FEED	COUNTDOWN	3B 380719	11 -420	YES NO		699943
FAILURE MODE-OUT OF TOLERANCE. LOX TANKING WAS NOT COMPLETED BY THE PRESCRIBED TIME. SYSTEM EFFECT-OPERATION TOO LONG. INSUFFICIENT LOX ABOARD THEREFORE ADDITIONAL TIME WAS REQUIRED TO COMPLETE TANKING.	CORRECTIVE ACTION-COUNTDOWN DELAYED. TWO MINUTE HOLD REQUIRED TO COMPLETE LOX TANKING.					
PROPELLANT LOADING-GDC-63E FTA4102/P1-207-001-3 LOX FEED	COUNTDOWN	3B 680718	11 -440	YES NO		699944
FAILURE MODE-OUT OF TOLERANCE. LOX TANKING WAS NOT COMPLETED BY PRESCRIBED TIME. SYSTEM EFFECT-OPERATION TOO LONG. INSUFFICIENT LOX ABOARD SO THAT ADDITIONAL TIME WAS REQUIRED TO COMPLETE LOX TANKING.	CORRECTIVE ACTION-UPN/MCN. HOLD REQUIRED TO COMPLETE TANKING.					
						PAGE 002

GENERAL DYNAMICS  
CONVAIR DIVISION

18 JUN 1968

DIFFICULTIES REVIEW-PROPELLANT UTIL/LOADING SYSTEM-68

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	OF/D DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
PROPELLANT LOADING-GOC-68E FTA4088/P4-201-00-4 LOX TRANSFER PUMP LOX FEED	F4P	4B 3A0716	13 -2400	YES NO		699904
FAILURE MODE-FAIL DURING OPERATION. COMPLETE LOX LOADING COULD NOT BE ACHIEVED BECAUSE OF FAILURE OF LOX TRANSFER PUMP LC.	SYSTEM EFFECT-OPERATION STOP & PREMATURELY. PUMP LC FAILED WITH THE LOX LEVEL 2000 POUNDS BELOW DESIRED LEVEL.					
VEHICLE EFFECT-COUNTDOWN DELAYED. HOLD TIME WAS 2 MINUTES.	CORRECTIVE ACTION-NONE. THE TEST WAS PERFORMED WITH LOX LEVEL 2,000 POUNDS LOX.					
PROPELLANT LOADING-GOC-68E FTA4088/P4-208-00-2 LOX FEED	COUNTDOWN	3B 5A0715	11 -050	YES NO		699943
FAILURE MODE-OUT OF TOLERANCE. LOX TOPPING WAS NOT COMPLETED BY THE PRESCRIBED TIME.	SYSTEM EFFECT-OPERATION TOO LONG. INSUFFICIENT LOX ABOARD SO THAT ADDITIONAL TIME WAS REQUIRED TO COMPLETE LOX TANKING.					
VEHICLE EFFECT-COUNTDOWN DELAYED. 2 MINUTE HOLD.	CORRECTIVE ACTION-LINK NORN. HOLD REQUIRED TO COMPLETE LOX TOPPING.					
PROPELLANT LOADING-GOC-68E FTA2319/P2-102-00-10 LOX DUMP LINE BELLOWS LOX FEED	F4F	10A 571187	ETR -2640	YES NO		699972
FAILURE MODE-STRUCTURAL. LOX DUMFLINE BELLOWS Ruptured WHICH CAUSED LOX TO DUMP IN THE COMPLEX AREA.	SYSTEM EFFECT-DEPLETION OF LIQUID SUPPLY.					
VEHICLE EFFECT-COUNTDOWN DELAYED. RECYCLE TIME WAS 24 MINUTES, HOLD TIME WAS 1 HOUR AND 48 MINUTES.	CORRECTIVE ACTION-THE BELLOWS ASSEMBLY WAS REPLACED.					
PROPELLANT LOADING-GOC-68E F4P-CT-3B-340-024 SOLENOID VALVE, POPPET FUEL FEED	F4P 53-02961-1	651182	ETR	YES MAROTTA NO 006134		
FAILURE MODE-STRUCTURAL. THE SOLENOID VALVE LEAKED FROM THE PRESSURE PORT TO THE VENT PORT WHEN THE SOLENOID WAS ENERGIZED. THE FAILURE WAS CONFIRMED DURING FAILURE ANALYSIS AND WAS ATTRIBUTED TO DEFORMATION OF THE POPPET SEAT. THE VALVE BECAME HOT WHEN ENERGIZED FOR LONG PERIODS OF TIME, AND THE POPPET SEAT BECAME DEFORMED FROM THE POPPET FORGE. AFTER REPEATED CYCLES THE ARMATURE TRAVEL IS NOT ENOUGH TO PRODUCE A GOOD SEAL BETWEEN POPPET AND SEAT.	Page 0781					

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GENERAL DYNAMICS

DRAFT CIRCULAR 13 URGES NEW HABITS 34734-A-22

SYSTEM	OUT-OF-SYSTEM	TEST/WEIGHT HUNGER	FAILED COMPONENT NAME	DEFECTIVE PART NUMBER	VEHICLE	SITE	PRI	VEHICLE NAME	VEHICLE PART NO
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CORRECTIVE ACTION—IT WAS RECOMMENDED THAT THE VALVE BE REDESIGNED TO PROVIDE A CONSTANT FORCE OF THE POPPET AGAINST THE SEAT. IT WAS ALSO RECOMMENDED THAT PERIODIC CHECKS BE MADE FOR PROPER ADJUSTMENT OF ARMATURE TRAVEL.

PROPELLANT LOADING - EDC-GSE GDC/ZZH65-031-DA 1068  
FUEL FILL AND DRAIN VALVE FLANGE  
COMPOSITE-FRO/L94 7113 2-4 YES  
655102 CMC  
699310

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FAILURE MODE-EXTERNAL LEAK. A FUEL LEAK WAS NOTED DURING DPL LEAK CHECK AT THE GROUND FUEL PILL AND DRAIN VALVE PLATE.

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**CORRECTIVE ACTION PLAN**

PROPELLANT LOADING-GOC-CSE 804-90F-27/83-401-00-34  
COUNTDOWN  
340 8-3 YES  
699370

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FAILURE MODE-FRAGMENTATION

PROPELLANT LOADINGS-GOC-683 /83-4HO-03-34  
LIQUID SENSOR

SYSTEM EFFECTIVENESS AND OPERATIONAL STABILITY OF FUEL PARTITIONING AT TIME SPLITTING

STRUCTURE-EFFECT-COMPARISON

[REDACTED]

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GENERAL DYNAMICS  
CONVAIR DIVISION

## DIFFICULTIES REVIEW-PROPELLANT UTIL/LOADING SYSTEM-GSE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	ATE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
SYSTEM EFFECT-NONE.						699849
VEHICLE EFFECT-COMPOSITE DELAYED. A HOLD WAS CALLED WHILE THE FLEX LINE WAS REPLACED.						
CORRECTIVE ACTION-THE FLEX LINE WAS REPLACED.						
PROPELLANT LOADING-GDC-68E MNASOF10/P2-48N-01-106 FUEL FEED		COMPOSITE-FAD/DPL 1860 FUEL TOTALIZER 07-29168-3	650127	12	YES NO	699844
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. THE FUEL TOTALIZER WAS INOPERATIVE AND FUEL WAS TANKED USING ONLY THE PLCU PROBES.						
SYSTEM EFFECT-LOSS OF BACKUP.						
VEHICLE EFFECT-NONE.						
CORRECTIVE ACTION-LINK NORM.						
PROPELLANT LOADING-GDC-68E AKS3-0012/P4-78N-01-5301 COUNTER FUEL FEED		COMPOSITE-FRD/DPL 5305 COUNTER 2T-02137-1	650121	14	YES NEPTUNE NO	699804
FAILURE MODE-FAIL DURING OPERATION. THE FUEL TOTALIZER COUNTER FAILED DURING TIPPING AND WAG IRO.						
SYSTEM EFFECT-NONE.						
VEHICLE EFFECT-NONE.						
CORRECTIVE ACTION-COUNTER REPLACED AFTER THE TEST. (IR 972352).						
PROPELLANT LOADING-GDC-68E LV-98-30-3286-F BOLENOID VALVE FUEL FEED		FAR 2T-02106-1	650113	ETR	YES SOUTHERN NO 603394	699784
FAILURE MODE-INTERNAL LEAK. THE VALVE LEAKED TO VENT WHILE CLOSED. THE LEAKAGE WAS ATTRIBUTED TO IMPROPER SETTING OF THE NORMALLY CLOSED POPPET SEAT ADJUSTMENT.						
CORRECTIVE ACTION-GDC SHOP AND INSPECTION PERSONNEL WERE INFORMED THAT CARE SHOULD BE TAKEN TO ASSURE CORRECT ADJUSTMENT AND PREVENT ACCEPTANCE OF MARGINALLY ADJUSTED VALVES AS OUTLINED IN PAM LV-90-40-3740.						

2025 RELEASE UNDER E.O. 14176

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## DIFFICULTIES REVIEW-PROPELLANT UTIL/LOADING SYSTEM-GSE

SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	OIF DATA SOURCE PART NUMBER	VEHICLE	SITE	PRI	VENDOR NAME VENDOR PART NO
PROPELLANT LOADING-GDC-GSE	FAR-LV-9B-40-3876 SOLENOID OPERATED VALVE, O-RING	FAR 2T-0C106-1	641016	ETR	YES MAROTTA NO 603394	699778
<b>FUEL FEED</b>						
FAILURE MODE-STRUCTURAL- THE SOLENOID VALVE IS IN THE LAUNCHER PURGE BOX AND SUPPLIES PNEUMATIC PRESSURE TO OPERATE THE FUEL PREVALVE. THE VALVE REPORTEDLY FAILED BECAUSE OF LEAKAGE THRU THE VENT PORT. THE NORMALLY-CLOSED POPPET SEAT O-RING WAS UNDERSIZE CAUSING IT TO DISTORT. THIS COMBINED WITH AGING PLUS THE LUBRICANT DRYING CAUSED THE FAILURE.						
<b>CORRECTIVE ACTION-NONE.</b>						
PROPELLANT LOADING-GDC-GSE	FAR-LV-9B-40-3873 SOLENOID OPERATED VALVE	FAR 2T-0C106-1	641007	ETR	YES MAROTTA NO 603394	699773
<b>FUEL FEED</b>						
FAILURE MODE-OUT OF SPECIFICATION- THE SOLENOID VALVE IS IN THE LAUNCHER PURGE BOX AND SUPPLIES PNEUMATIC PRESSURE TO OPERATE THE FUEL PREVALVE. THE VALVE FAILED DURING CHECKOUT WHEN IT DID NOT OPEN. IMPROPER ADJUSTMENT OF THE ARMATURE STEM DURING REWORK CAUSED THE VALVE NOT TO FUNCTION.						
<b>CORRECTIVE ACTION- THE FAILURE WAS CONFIRMED. A TMX WAS SENT TO SITE INFORMING THEM OF THE FAILURE. FACTORY PERSONNEL WERE INFORMED OF THE FAILURE AND RECOMMENDED NECESSARY ACTION BE TAKEN TO ASSURE CORRECT ADJUSTMENT OF THE STEM.</b>						
PROPELLANT LOADING-GDC-GSE	FAR-CT-9B-400-054 FILL AND DRAIN VALVE CLAMP	FAR 2T-29006	135D 640630	ETR	YES AIR RESEARCH NO	699808
<b>FUEL FEED</b>						
FAILURE MODE-STRUCTURAL- THE FUEL FLEX DUCT FROM THE MISSILE RISER DISCONNECT TO THE FILL VALVE ON THE LAUNCH STATION SEPARATED FROM THE FILL VALVE AND WAS BLOWN DOWN THE FLAME BUCKET. FAILURE WAS CONFIRMED. HIGH TEMPERATURE ENGINE EXHAUST GASES CAUSED EXPANSION OF THE CLAMP RING AND MELTED THE SNAPS AND LOCKWIRE LEAVING THE CLAMP HANDLE UNRESTRAINED. THE CLAMP WAS THEN EASILY OPENED BY HIGH VELOCITY EXHAUST GASES AND INDUCED VIBRATION.						
<b>CORRECTIVE ACTION-RECOMMENDED PIN AND SNAPPING BE REPLACED BY A HIGH TEMPERATURE BOLT AND SELFLOCKING NUT, STRENGTHENING OF THE CLAMP SUPPORTING BRACKET AND REPLACE SAFETY WIRE WITH A CLAMP CAPABLE OF WITHSTANDING THE ENVIRONMENTAL CONDITIONS. ALTERNATE WOULD BE TO REDESIGN VALVE AND DUCT TO INCORPORATE A BOLTED FLANGE AT THE INTERFACE OR A SOLID CLAMP RINGS.</b>						

GENERAL DYNAMICS  
CONVAIR DIVISION

18 JUN 1966

DIFFICULTIES REVIEW-PROPELLANT UTIL/LOADING SYSTEM-GSE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	OIF DATA SOURCE PART NUMBER	VEHICLE DATE DIP	SITE TIME DIP	PRI OTH	VENDOR NAME VENDOR PART NO
PROPELLANT LOADING-GDC-GSE FAE-LV-98-24-4372-F COUNTER FUEL FEED	FAN 01-44900-003	640311	ETR	YES AUTRON	NO	6280-024-A3 698780
FAILURE MODE-STRUCTURAL. THE COUNTER WHICH INDICATES THE AMOUNT OF FUEL IN THE MISSILE TANK WAS REPORTED TO BE COUNTING INACCURATELY AND WITH ERRATIC MOTION. AFTER DISASSEMBLY IT WAS DISCOVERED THAT A SPRING ARMATURE WHEEL ASSEMBLY HAD BROKEN DUE TO FATIGUE.	CORRECTIVE ACTION-THE FAILURE WAS CONFIRMED. THE VENDOR WAS CONTACTED AND IT WAS LEARNED THAT THIS ASSEMBLY HAS BEEN REDESIGNED TO ELIMINATE THE FATIGUE SUSCEPTIBILITY, AND HAS BEEN INCORPORATED INTO ALL COUNTER MODELS.					
PROPELLANT LOADING-GDC-GSE LY-98-40-3234-F FILL AND DRAIN VALVE FUEL FEED	FAN 27-02101-23	640227	ETR	YES AIR RESEARCH NO 121054		698674
FAILURE MODE-ERRATIC OPERATION. THE GROUND FUEL FILL-AND-DRAIN VALVE OPERATION WAS ERRATIC DURING CHECKOUT. THE FAILURE WAS CONFIRMED. THE ERRATIC OPERATIONS WERE CAUSED BY ANY COMBINATION OF THE FOLLOWING DISCREPANCIES. 1. THE VALVE BUTTERFLY WAS ASSEMBLED INCORRECTLY AND WAS FOUND TO BE OFF-CENTER. 2. THE LIMIT INDICATING SWITCH WAS SUSCEPTIBLE TO CHANGING ACTUATING POSITION SUFFICIENTLY TO SHIFT THE BUTTERFLY INDICATION POSITION. 3. SOME BINDING MAY HAVE OCCURRED WHEN THE VALVE ACTUATING LEVER RUBBED AGAINST THE ACTUATOR HOUSING.	CORRECTIVE ACTION-THE GD/C SUPPORT CENTER MECHANICAL PERSONNEL HAVE BEEN INSTRUCTED TO INCLUDE IN ASSEMBLY • THE VENDOR P/N 1A157H102-031 WASHERS AS INDICATED IN THE NEVLY FURNISHED VENDOR P/N 121055-P DRAWING. CARE WILL BE TAKEN TO PREVENT THE IMPROPER BEARING PLACEMENT AND IMPROPER BUTTERFLY POSITION.					
PROPELLANT LOADING-GDC-GSE FAE-CT-98-40-023 FILL AND DRAIN VALVE, SWITCH FUEL FEED	FAN 27-02101-23	650425	ETR	YES AIR RESEARCH NO 121054		698600
FAILURE MODE-OUT OF TOLERANCE. THE GROUND FUEL FILL AND DRAIN VALVE WAS REJECTED BECAUSE OF SLUGGISH OPENING OPERATION. THE MICROSWITCH WAS OUT OF ADJUSTMENT CAUSING THE VALVE-CLOSED MICROSWITCH TO DEACTIVATE EARLY DURING THE VALVE OPENING HALF-CYCLE. WHEN VIEWING THE VALVE POSITION LIGHTS, OPERATION WOULD APPEAR SLUGGISH.	CORRECTIVE ACTION-RECOMMENDED THAT THE APPROPRIATE REBUILD AND SITE PERSONNEL BE INFORMED OF THE FINDINGS AND THAT THE SWITCH ADJUSTMENT PROCEDURE BE REVIEWED AND ALTERED AS NECESSARY TO PRECLUDE INTERMITTENT OPERATION OF THE SWITCHES.					

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DIFFICULTIES IN ESTIMATING UTILIZATION SYSTEMS - 681

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIP DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
PROPELLANT LOADING-6DC-6SE AAS1-DIAT/P2-4BN-01-020 FUEL FEED	FUEL TOTALIZER	COMPOSITE-FRD/DPL 30E 610981	EIR	YES NO		
FAILURE MODE-FAILED TO OPERATE AT PRESCRIBED TIME. DURING FUEL TANKING THE FUEL TOTALIZER FAILED TO OPERATE. SYSTEM EFFECT-LOSS OF REDUNDANCY. AMOUNT OF FUEL TRANSFERRED TO MISSILE NOT INDICATED BY TOTALIZER. VEHICLE EFFECT-NONE.						
CORRECTIVE ACTION-TOTALIZER SUBSEQUENTLY ADJUSTED PER PREP SHEET TPS 13-1469.						
PROPELLANT LOADING-6DC-6SE DA239/B3-4BN-01-99 FUEL FEED	GROUND FUEL FILL AND DRAIN VALVE	COMPOSITE-FRD/DPL 98D 601210	B3	YES NO		
FAILURE MODE-LEAK EXTERNAL. FUEL LEAK IN THE GROUND FILL AND DRAIN VALVE. SYSTEM EFFECT-NONE.						
VEHICLE EFFECT-COUNTDOWN DELAYED.						
CORRECTIVE ACTION-VALVE WAS TIGHTENED.						
PROPELLANT LOADING-6DC-6SE AAS0-0134/P2-4BN-01-035 FUEL FEED		COMPOSITE-FRD/DPL 93D 601107	EIR	YES NO		
FAILURE MODE-ERRATIC OPERATION. IMPROPER OPERATION OF FUEL LOADING SYSTEM RESULTED IN FUEL CONTAMINATION OF FUEL TA ME PNEUMATIC REGULATOR.						
VEHICLE EFFECT-COUNTDOWN ABORTED AND RE-SCHEDULED.						
CORRECTIVE ACTION-UNKNOWN FOR THE PROPELLANT LOADING SYSTEM. THE PNEUMATIC REGULATOR WAS REPLACED WITH A LIKE ITEM.						
PROPELLANT LOADING-6DC-6SE AAS0-0130/P2-4BN-03-55 FUEL FEED	PUMP CONTROL	COMPOSITE-FRD/DPL 55D 600381	EIR	YES NO		
FAILURE MODE-FAILED TO CEASE OPERATION AT PRESCRIBED TIME. FUEL TANK OVERFILLED 180 GALS PAST OVERFILL PROGE DURING TANKING TEST. AVAILABLE DETAILS INDICATE PUMP CONTROL PROBLEM.						
SYSTEM EFFECT-OPERATION TOO LONG. FUEL TANKING SYSTEM OPERATED TOO LONG RESULTING IN OVERFILL OF FUEL TANK DURING T						

GENERAL DYNAMICS  
CONVAIR DIVISION

10 JUN 1968

DIFFICULTIES REVIEW-PROPELLANT UTIL/LOADING SYSTEM-68E

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PMSI OTH	VENDOR NAME VENDOR PART NO
EAT.						699898

VEHICLE EFFECT-COMPOSITE RE\_SCHEDULED. FUEL PRESSURIZATION SYSTEMS WERE CONTAMINATED.

CORRECTIVE ACTION-FUEL TANKING SYSTEM CONTROL INVESTIGATED. RESULTS NOT INDICATED. CONTAMINATED PRESSURIZATION SYSTEM WAS CLEANED AND PURGED.

PROPELLANT LOADING-68C-68E AZC-27-121/PI-48N-01-51 FUEL FEED	COMPOSITE-FRD/DPL 310 FUEL FILL AND DRAIN VALUE GASKET	000217	EIA	YES NO	699896
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FAILURE MODE-EXTERNAL LEAK. DURING FUEL TANKING, A LEAK WAS FOUND AT THE LOWER FLANGE OF THE FUEL FILL AND DRAIN VALVE. INVESTIGATION REVEALED A MISSING GASKET.

SYSTEM EFFECT-NONE.

VEHICLE EFFECT-NONE.

CORRECTIVE ACTION-THE GASKET WAS INSTALLED.

PROPELLANT LOADING-68C-68E 98-40-029 FUEL FEED	FAR FILL AND DRAIN VALVE	27-02101-23	000100	EIA	YES AIRRESEARCH NO	699843
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FAILURE MODE-STRUCTURAL. SIX UNITS WERE FOUND TO BE CRACKED AT THE POINT WHERE THE BUTTERFLY SHAFT ENTERS THE CASTING ON THE SIDE OF THE VALVE OPPOSITE THE PNEUMATIC ACTUATOR. AT MISSILE RISE-OFF, EXHAUST HEATING OF THE VALVE CAUSED THE ALUMINUM CASTING TO EXPAND, ELIMINATING THE BUTTERFLY TO BORE NEGATIVE CLEARANCE. COOLING OF THE ALUMINUM CASTING CAUSED IT TO SHRINK BACK ONTO THE OVERSIZED STEEL BUTTERFLY. THE RESULTING STRESSES CAUSED THE BRITTLE CASTING TO CRACK.

CORRECTIVE ACTION-THE VENDOR HAS REDESIGNED THE VALVE BUTTERFLY SEAL TO ELIMINATE NEGATIVE METAL TO METAL CLEARANCE. VALVES INCORPORATING THIS CHANGE ARE ALREADY IN SERVICE. THE VENDOR IS NOW PROPERLY SHINING THE PNEUMATIC ACTUATOR TO PREVENT BUTTERFLY OVER TRAVEL.

PROPELLANT LOADING-68C-68E 82-4100-02-05 PLCU	COMPOSITE-FRD/OPL 892 LOX LOADING PROBES	02 041810	YES NO	699842
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FAILURE MODE-PREMATURE OPERATION. SIXTEEN MINUTES PRIOR TO LOX CHILLOWN ALL LOX LOADING PROBES ACTIVATED AND DE-ACTIVATED IN SEQUENCE. THE CAUSE OF THIS PROBLEM IS UNKNOWN.

SYSTEM EFFECT-NONE.

VEHICLE EFFECT-NONE.

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THE JOURNAL OF CLIMATE

FAILURE MODE-ERRATIC OPERATION. APPROXIMATELY 25 SECONDS AFTER FUEL LOAD START THE 90 PERCENT FUEL PROBE ACTIVATED INTERMITTENTLY. THE PROBE EXTINGUISHED 5 MINUTES LATER. FUEL WAS DRAINED AND ATTEMPTED A SECOND AND THIRD TIME WITH SIMILAR RESULTS. TROUBLE SHOOTING WAS INITIATED AND THE PROBES WERE FOUND TO BE OPERATING SATISFACTORILY. FUEL LOAD WAS STARTED THE FOURTH TIME AND PROCEEDED NORMALLY TO 90 PERCENT. FUEL LOAD TOOK 1 MIN 56 SEC. THIS IS 25 SEC LONGER THAN NORMAL AND MIGHT INDICATE A PREMATURE 90 PERCENT ACTIVATION.

MORSE-HELM

PROPELLANT LOADING-SOC-533 E 3-400-02-34	11810 SEMINOLE	COMPOSITE-FRD/DPL	240	650827	S-3	NO	YES
BLK 1							

## FAILURE MODE-LEVEL STATISTIC OPERATORS AND SIGNIFICANCE TESTS

SYSTEM EFFECTIVENESS ASSESSMENT

CORRECTIVE ACTION

PROPELLANT LOAD INC-60C-68 82-40-01-85  
 102 DRAIN LINE VALVE  
 PLCU  
 COMPOSITE-FRO/PFL 450 82  
 690922

FAILURE MODE-FAIL TO CEASE OPERATION AT PRESCRIBED TIME, DURING LOX LOADING, WHEN THE OVERFILL PROBE ACTIVATED, 4.22 (LOX LINE DRAIN VALVE) LOCKED OPEN INSTEAD OF OPENING, THEN CLOSING AFTER THE PRESSURE IN THE DRAIN LINE DECREASED BELOW 20 PSI. THIS PROBLEM HAS OCCURRED IN THE PAST AND IS UNDER INVESTIGATION

SYSTEM EFFECT-OFFERATION LAW IN

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DIFFICULTIES REVIEW-PROPELLANT UTIL/LOADING SYSTEM-GSE

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
PROPELLANT LOADING-GSC-GSE FAR-CT-9B-940-080 PLCU	FAR SOLENOID VALVE	FAR BB-029961-1	690701	ETR	YES HARROTA NO 806134	699624
FAILURE MODE-STRUCTURAL. WHEN THE SOLENOID WAS ENERGIZED, THE VALVE LEAKED INTERNALLY FROM THE PRESSURE PORT TO THE VENT PORT. LEAKAGE WAS CAUSED BY DEFORMATION OF THE POPPET SEAL.						
CORRECTIVE ACTION-THE FAILURE WAS CONFIRMED. IT WAS RECOMMENDED THAT THE VENDOR ESTABLISH A SOLENOID ARMATURE GAP A NO RETAINING MUT TORQUE THAT WILL PREVENT LEAKAGE, AND INVESTIGATE THE POSSIBILITY OF USING A POPPET SEAT MATERIAL THAT WILL NOT DEFORM ENOUGH TO ALLOW LEAKAGE.						
PROPELLANT LOADING-GSC-GSE FAR-CT-9B-940-018 PLCU	PROPELLANT FLOW CONTROL VALVE	FAR BB-029109-1	690508	ETR	YES HYDROMATICS NO SAKIS	699631
FAILURE MODE-CORROSION. THE VALVE ACTUATOR FAILED TO OPERATE DUE TO EXCESSIVE CORROSION IN ALL PNEUMATIC PARTS OF THE POSITIONER AND THE CUSHION REGULATOR. CORROSION WAS DUE TO MOISTURE ENTERING VENT HOLES OVER LONG PERIODS OF INACTIVITY.						
CORRECTIVE ACTION-THE FAILURE WAS CONFIRMED. IT WAS RECOMMENDED THAT ALL VALVES OF THIS PART NUMBER BE REPLACED IF THEY HAVE BEEN INACTIVE, AND THAT RAIN SHIELDS BE PROVIDED OR A MEANS DEVISED TO PURGE THE VALVE CONTINUOUSLY. SERVICE LIFE AND FREQUENCY OF INSPECTIONS SHOULD BE REVIEWED.						
PROPELLANT LOADING-GSC-GSE AA83-G039/P3-4BN-01-197 PLCU FUEL PROBE, SEAL	COMPOSITE-FPRO/DPL	197D	ETR	YES 690607	NO	699639
FAILURE MODE-EXTERNAL LEAK. DURING THE FUEL TANKING TEST, A SMALL AMOUNT OF SEEPAGE WAS NOTED AT THE PLCU FUEL PROBE E.						
SYSTEM EFFECT-NONE.						
VEHICLE EFFECT-NONE.						
CORRECTIVE ACTION-THE SEAL WAS REPLACED.						
PROPELLANT LOADING-GSC-GSE AA81-0162/PR-102-00-117 PLCU	COUNTDOWN	'	1170	121	YES	
			611028	-3600	NO	
FAILURE MODE-FAIL TO OPERATE AT PREScribed TIME SOLENOID OF VALVE LCP IN LOZ LOADING SYSTEM INOPERATIVE.						

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CONVAIR DIVISION

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DIFFICULTIES REVIEW-PROPELLANT UTIL/LOADING SYSTEM-68C

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DATA SOURCE PART NUMBER	VEHICLE DATE DIF	ELITE. TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
SYSTEM EFFECT-NONE.						699867
VEHICLE EFFECT-NONE.						
CORRECTIVE ACTION-REPLACED.						
PROPELLANT LOADING-6DC-68E A-98-10-141F PLCU	Liquid Oxygen Disconnect Valve, SE 87-29077-3 AL	PAR 611010	EIR -6D	YES NO		699868
FAILURE MODE-OUT OF TOLERANCE. THE DISCONNECT WAS LEAKING PAST THE KEL-F LIP SEAL (P/N 27-29096-7). THE NOTED DISTORTION, AND SEAL FAILURE IS ATTRIBUTED TO POOR OR NO ANNEALING. A LUBRICANT WAS ALSO FOUND ON THE BACK OF THE KEL-F LIP SEAL.						
CORRECTIVE ACTION-VCAR 1386-62 FROM PEACOCK ENGINEERING STATES: SUBJECT SEALS WERE MANUFACTURED BEFORE NOV. 28, 1986 BY RACO ENGINEERING. THIS VENDOR IS NO LONGER FURNISHING THIS PART. PRESENT VENDOR IS THE FLUOROCARBON CO. CONVAIR DRAWING 87-29096, CHARGE A, CHANGES THE SEAL MATERIAL REQUIREMENT FROM AMS 3850 TO CONVAIR SPEC /-79064.						
PROPELLANT LOADING-6DC-68E A-981-0797/P1-501-00-26 PLCU	50 SECND TIMER PROBE	COUNTDOWN 610808	28E -6D	EIR NO	YES NO	699842
SYSTEM EFFECT-OPERATION STOPS PREMATURELY. LOX SLUG TRANSFER SEQUENCE STOPPED BEFORE COMPLETION.						
VEHICLE EFFECT-COUNTDOWN DELAYED. A 5 MINUTE HOLD WAS CALLED TO PREPARE FOR SECOND SLUG ATTEMPT.						
CORRECTIVE ACTION-NONE.						
PROPELLANT LOADING-6DC-68E AC-60-0026742-501-41-02 PLCU	LOX TANK HIGH TOPPING RELAY IN PLC U	CAPTIVE 600719	EE U	EE NO	YES NO	699817
FAILURE MODE-FAIL TO OPERATE PRESCRIBED TIME. THE RELAY DID NOT PICK UP UNTIL 17 SECONDS AFTER THE PROBE HAD BEEN COVERED.						
SYSTEM EFFECT-OPERATION STOPS PREMATURELY. INITIAL LOX SLUG TRANSFER OPERATION WAS PREMATURELY TERMINATED. ANOTHER SLUG TRANSFER WAS ACCOMPLISHED WITH NO DIFFICULTIES.						
VEHICLE EFFECT-COUNTDOWN DELAYED.						
CORRECTIVE ACTION-UNK/NORN.						

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DIFFICULTIES REVIEW-PROPELLANT UTIL/LOADING SYSTEM-GSE

SYSTEM SUB-SYSTEM	TEST REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIFF	BITE TIME DIFF	PRI OTH	VENDOR NAME VENDOR PART NO
PROPELLANT LOADING-GDC-GSE AZC-27-003/PZ-40N-03-28 PLCU	PROBES	COMPOSITE-FRD/OPL 691025	E7R	YES	NO	690999
FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME. THE PLCU WAS UNSATISFACTORY. THE PLCW AND PU PROBES DID NOT FUNCTION.	ON.					
SYSTEM EFFECT-NONE.						
VEHICLE EFFECT-COMPOSITE RE-SCHEDULED.						
CORRECTIVE ACTION-UNKNOWN.						
PROPELLANT LOADING-GDC-GSE PTA4375/PZ-302-00-04 METER	COUNTDOWN	4C 590123	E7R -35	YES NO	NO	690973
PLCU						
FAILURE MODE-OUT OF TOLERANCE. LOW METER READING, UPON GOING TO STAGE 3. ANALYSIS INDICATED THAT THERE WAS A PROPER LOZ LOAD. TWO ADDITIONAL RUNS GAVE SIMILAR RESULTS. THE CAUSE OF THIS PROBLEM IS UNKNOWN.						
SYSTEM EFFECT-OPERATION TOO LOW. LOZ WAS DETANKED BECAUSE THE METER INDICATED AN INSUFFICIENT LOZ LOAD.						
VEHICLE EFFECT-COUNTDOWN DELAYED. PT MIN OF HOLD RESULTED AND THIS PROBLEM WAS A CONTRIBUTING CAUSE FOR THE COUNTDOWN ABORT.						
CORRECTIVE ACTION-UNKNOWN.						
PROPELLANT LOADING-GDC-GSE PTA4375/PZ-302-00-04 METER	COUNTDOWN	4C 590123	12 -35	YES NO	NO	690928
PLCU						
FAILURE MODE-FAIL DURING OPERATION. PLCU METER READING DROPPED FROM 100.8 PCT (AT STAGE 2) TO 98 PCT UPON GOING TO STAGE 3. TWO ADDITIONAL RUNS OBTAINED SIMILAR RESULTS. PLCU METER INDICATION WAS CONSIDERED ERROUS.						
SYSTEM EFFECT-OPERATION TOO LOW. ANALYSIS INDICATED PROPER LOZ LOAD. LOZ WAS DETANKED BECAUSE OF LOW METER INDICATION.						
VEHICLE EFFECT-COUNTDOWN DELAYED.						
CORRECTIVE ACTION-UNKNOWN.						
PROPELLANT LOADING-ACCS-6 HECK-1120/PZ-900-00-28 SC	COUNTDOWN	35E 611103	11 -90	YES NO	NO	690932
PLCU						
FAILURE MODE-FAILED TO OPERATE AT PRESCRIBED TIME. NO LOX BLUE WAS DELIVERED TO THE LOZ TANK DURING AN ATTEMPTED LAUNCH. SECONDARY FAILURE. LOW LEVEL FLOAT SWITCH IN LOX ELUG TANK WAS STUCK IN THE LOH POSITION AND PREVENTED START OF						

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DIFFICULTIES REVIEW-PROPELLANT UTIL/LOADING SYSTEM-GSE

STATION SUB-STATION	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE	SITE	PNI	VENDOR NAME
699303						

F SLUG DELIVERY.

SYSTEM EFFECT-OPERATION DOES NOT START. THE LOX SLUG DELIVERY WAS NOT INITIATED AND LOX IN THE VEHICLE WAS TOO LOW FOR FLIGHT.

CORRECTIVE ACTION-LAUNCH RESCHEDULED AND PERFORMED ON FOLLOWING DAY. LOX SLUG TANK SWITCH WAS JUMPERED PER EO 23690  
 • TO GIVE A CONTINUOUS WET SIGNAL.  
 PROPELLANT LOADING-ACTION-# AAG3-0004/P1-08N-02-114  
 SC  
 SEAL-LOX TOPPING LINE  
 LOX FEED  
 87-28096-7

FAILURE MODE-LEAK EXTERNAL-DURING THE SECOND DPL ON THIS VEHICLE, A LARGE LOX LEAK WAS NOTED AT THE AIRBORNE SIDE OF THE LOX TOPPING RISER-OFF DISCONNECT. LEAK WAS DUE TO A MISSING SEAL.  
 SYSTEM EFFECT-NONE. LOSS OF LOX THROUGH THE LEAKAGE POINT. LEAK WAS DISCOVERED WHEN LOX TOPPING WAS TEMPORARILY HALTED BY ACTIVATION OF SLUG TANK LOW LEVEL CUTOFF FLOAT. THIS INADVERTENT CUTOFF MAY HAVE BEEN DUE TO THE LOX LEAK. THE LEAK COULD HAVE CAUSED WORTHEMING IN THE SLUG TANK WITH RESULTING CUTOFF.

VEHICLE EFFECT-COMPOSITE ABORTED AND RE\_SCHEDULED.

CORRECTIVE ACTION-MISSING SEAL WAS REPLACED. THE RESCHEDULED COMPOSITE WAS PERFORMED SUCCESSFULLY WITH NO LEAKS REPORTED.

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## DIFFICULTIES REVIEW-SERVICE TOWER SYSTEM-68E

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTH	VENDOR NAME VENDOR PART NO
SERVICE TOWER-68E	AASG-0187/P4-402-00-114	COUNTDOWN	1110 010623	12 -3000	YES NO	688681
	FAILURE MODE-FAIL DURING OPERATION.					
	SYSTEM EFFECT-OPERATION DOES NOT START.					
	VEHICLE EFFECT-COUNTDOWN DELAYED TO COMPLETE SERVICE TOWER REMOVAL PREPARATIONS.					
	CORRECTIVE ACTION-NONE.					
SERVICE TOWER-68E	AEG-0538/P4-402-00-68	COUNTDOWN	620 000622	14 -6040	YES NO	688684
	FAILURE MODE-FAIL TO OPERATE AT PRESCRIBED TIME.					
	SYSTEM EFFECT-OPERATION DOES NOT START. TOWER DID NOT MOVE BECAUSE OF LACK OF AIR PRESSURE.					
	VEHICLE EFFECT-NONE.					
	WORLD CALLLED.					
	CORRECTIVE ACTION-UNKNOWN.					
SERVICE TOWER-68E	PTA5028/P2-304-00-08	COUNTDOWN	8C 580715	12 MINUS 34 00	NO NO	688680
	FAILURE MODE-FAILED TO OPERATE AT PRESCRIBED TIME. THE TOWER CREW WAS LATE IN MOVING THE TOWER TO THE MAINTENANCE AREA.					
	SYSTEM EFFECT-OPERATION STARTS TOO LATE. TOWER REMOVAL WAS NOT ACCOMPLISHED ON TIME.					
	VEHICLE EFFECT-COUNTDOWN DELAYED. 4 MINUTES HOLD.					
	CORRECTIVE ACTION-CONTINUE TASK.					
SERVICE TOWER-68E	PTA4757/P3-402-00-09	COUNTDOWN	30 580414	13 -4200	NO NO	688682
	FAILURE MODE-OUT OF TOLERANCE. TOWER REMOVAL AND SECURING COULD NOT BE ACCOMPLISHED WITHIN PRESCRIBED TIME DUE TO A					
	NOTITIONAL TASKS WHICH WERE PERFORMED AND B&D COMMUNICATIONS WITH THE TRANSPER TABLE.					
	CORRECTIVE ACTION-NONE.					
	VEHICLE EFFECT-COUNTDOWN DELAYED. 30 MINUTE HOLD TO COMPLETE TOWER REMOVAL AND OTHER TASKS HELD UP BY FAILURE TO GET TOWER REMOVED.					
	CORRECTIVE ACTION-HOLD TO COMPLETE TASK.					

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DIFFICULTIES REVIEW-SERVICE TOWER SYSTEM-60E

SYSTEM SUB-SYSTEM	TEST/REPORT NUMBER FAILED COMPONENT NAME	DIF DATA SOURCE PART NUMBER	VEHICLE DATE DIF	SITE TIME DIF	PRI OTM	VENDOR NAME VENDOR PART NO
SERVICE TOWER-60E	FRA4101/P1-808-00-3	COUNTDOWN	12 600719	11 -9100	NO NO	699444

FAILURE MODE-OUT OF TOLERANCE. STAND OPERATIONS WERE NOT COMPLETED BY PRESCRIBED TIME DUE TO RANGE SAFETY COMMAND TEST DELAYS.

SYSTEM EFFECT-NONE.

VEHICLE EFFECT-COUNTDOWN DELAYED. 15 MINUTE HOLD.

CORRECTIVE ACTION-HOLD TO COMPLETE TASKS.